

MOTOR TREND

The Car Owners Magazine
Combined with Auto Sportsman

TECHNOLOGY DEPT.

DO YOU KNOW YOUR CARS?

a fun contest
with prizes!

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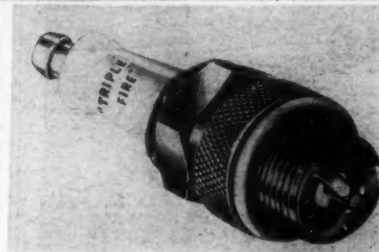
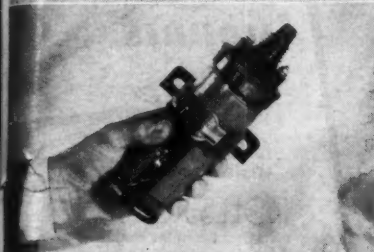
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MAIL MART

Each month, this page will carry a selection of new and interesting automotive specialties, plus a few of the old favorites from the enormous stockrooms of the world's largest distributors of high performance auto parts.

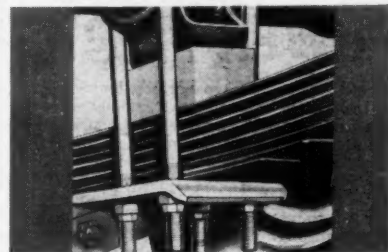
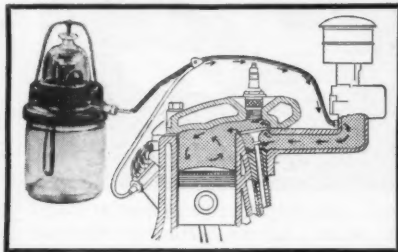
Naturally, only a few items can be shown in each issue—so whatever your need may be, in power, speed, custom or economy equipment—any item—any brand—for any car, if you don't see it here, order from the address below—Enclose only 20% deposit on C.O.D. orders—item will be mailed immediately.



Built like a power house transformer! From England comes the Runbaken OilCoil, which engineers acclaim the hottest coil in the world! 30,000 volts output compared to ordinary coils' 10-12,000 volts. Gives quicker starts, more pulling power and acceleration, better mileage. Features unbreakable transparent case with visible windings immersed in clear oil for cooling and to exclude moisture. Fits any car; full two-year guarantee, only \$19.95 Ppd. Item #1.

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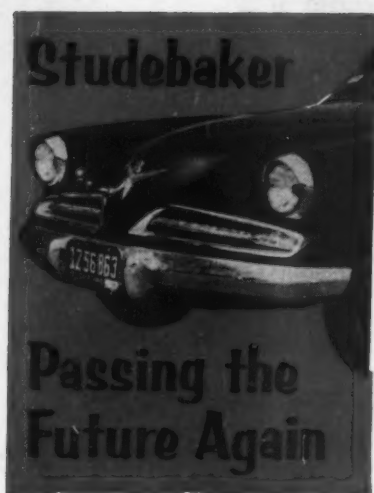
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Newhouse Automotive Industries Dept. 103
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Gentlemen: Please ship me right away the items checked in the boxes at the right. My car is a

Year _____	Make _____	Model _____	No. Cyl. _____	\$ _____ full price
Name _____				enclosed, send at once.
Address _____				\$ _____ 20% deposit enclosed, send COD.
City _____	Zone _____	State _____		

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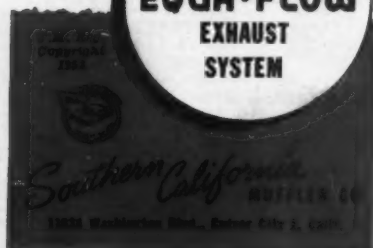
The breathtaking 1953 Studebaker comes straight out of the dream book. The "Starliner" is low and racy—magnificent to handle as it takes corners like a European sports car. Yes, once again, Studebaker has scooped the field by catching and passing the future. And there's a way to make your new Studebaker even more exciting.

POWER PLUS!

Belond engineers have perfected a new EQUA-FLOW Exhaust System custom-designed for V-8 Studebaker coupes. Results have been tremendous, both in power boost and increased gas mileage. Precision-built Headers replace rough, cast-iron stock manifolds. These headers direct exhaust gases quickly and efficiently through extensions, mufflers and dual tail-pipes. Released power goes right to the rear wheels for faster acceleration, higher top speeds, and blazing all-round performance. You'll be amazed at the increase in gas mileage, too. So, if you drive the wonderful new Studebaker or any other V-8 car, see your nearby Belond EQUA-FLOW Exhaust System Dealer or write for information.



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EQUA-FLOW
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SYSTEM



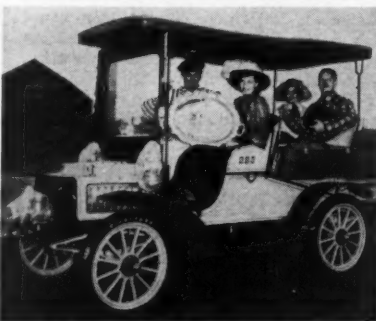
Four



MORE THAN 300 early 20th Century cars had their day recently in the Eighth Annual Revival of the now-famous Glidden Tour. Here is the winner of the top award as the "Most Interesting" car of those participating in the 1953 Cleveland-Columbus-Detroit tour.

Can you name this early 1900 showpiece? If you can, or even if you can't, you'll have fun in MOTOR TREND's new prize-packed "Do You Know Your Cars?" contest (page 32).

We won't keep you guessing on this one, however. It's a 1904 Rambler touring car. In the two-cylinder vehicle are the proud



owners, Mr. and Mrs. Dick Teague, of Rochester, Mich. They are holding the Firestone silver tray trophy which they won. Dick is the chief stylist at Packard, incidentally. The Homer Lagasseys are seated in the rear.

HERE'S AN interesting item we picked up from the New York Times . . . in a letter to the editor, G. Frederic Riegel, Jr., pointed out something we would like to see adopted in this country. Riegel observed that in Paris where they have a street pattern complicated by circles and no stoplights, you rarely see accidents. "One thing that surely contributed," he said, "is the thoughtful neglect of the horn in all but the most serious situations." This is somewhat like the old "cry wolf" story. If you're always using your horn, nobody believes you when you're really using it as a warning. In Paris it's illegal to blow your horn unless an accident is imminent. It is possible, Riegel points out, "that accidents would decrease [and] it would be a more pleasant place in which to live."

TWO WOMEN drivers recently arrived in Manhattan armed with statistics which they claim are conclusive proof that America's No. 1 road hazard is: Men.

Last week they completed a transcontinental safety check of America's highways, driving a Hudson Jet nonstop from New York to San Francisco. On their return trip they checked off traffic safety violations they saw on the highway, noting sex of the offenders (Continued on page 6)

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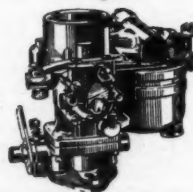
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Motor Trend

This Month's Cover

The blue Bugatti, with owner Francis H. Ludington at the wheel, was shot for this month's cover by Bill Harkins. Carlyle Blackwell's color study of a new Kurtis 500-C includes Mary Anders, appearing in theaters everywhere in 20th Century-Fox's "How to Marry a Millionaire," and appearing here in a sweater by Ohrbach's, Los Angeles. For more on the Italia see page 40. (Photo courtesy Hudson Motor Co.)

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MOTOR TREND



THE CAR OWNERS MAGAZINE
Combined with Auto Sportman

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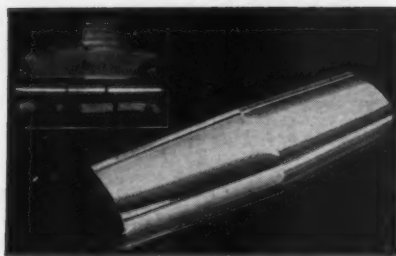
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CUSTOM-STYLED

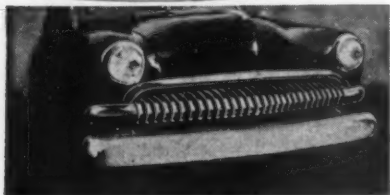
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Installed in a Few Minutes. 16 Inches Long
This beautiful bar replaces the center bowl and also extends outward to cover the black striping. It matches perfectly with the original right and left bars and gives your grille the appearance of one massive single bar. Excellent chrome plate. Easy installation. F-53-CB—Guaranteed \$7.50 Each.

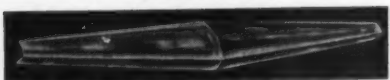
CUSTOM-LINER GRILLE



To Fit 1949-50-51 Fords

This Custom Grille is styled and engineered to replace the original grille on all Ford 1949-50-51. Constructed of heavy gauge steel. Precision engineered for perfect fit and easy installation. Its gleaming chrome finish and massive appearance will beautify any Ford. Individually boxed—can be shipped parcel post. FCL-47—Guaranteed \$21.00 Each.

GRILLE BARS

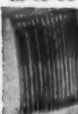


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M-49-CG



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Replaces the original center piece on your Mercury.

We can supply replacement Ford 1951 Parking Light Frames and Hood Mouldings. These Parking Light Frames and Hood Mouldings are necessary when customizing a 1949 Ford. Only the Hood Moulding is necessary for a 1950 Ford. Parking Light Frames—\$10.00 per Set. Hood Mouldings—\$9.00 per Set. Guaranteed.

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Glove Compartment

(Continued from page 4)

and states in which they did their dirty work.

Dorothy Mignault, attorney and management consultant from Kennebunkport, Maine, and Claire Emory, a radio broadcaster from Westport, Conn., claim their check—the first on-the-road, cross-country survey of its kind—fully vindicates the much-maligned woman behind the wheel.

They used a "safe driving check list," drawn up by outstanding traffic experts, which enumerates 20 common safety offenses committed by drivers of both sexes every day.

"Our findings positively challenge male driving superiority," Miss Mignault reports. "In each of the 20 offenses, men are way out front in violations."

Here are the figures on the most frequent offenses committed by both sexes:

Speeding, 865 men, 84 women.

Passing on hills or curves, 26 men, only one woman.

Following too closely, 30 men, again only one woman.

Not signalling properly, 404 men, 105 women. (That's some consolation!)

And here's the final blow: Of the 2061 violations reported, 1821 were by men drivers with only 240 committed by women!

These figures are indeed impressive, but we would like to find out one thing: How many male drivers there are for every woman—not overall, but driving on the highways.

ARE YOU HAVING trouble, ladies, deciding on gifts for that man of yours? If you are like us, you'll welcome MOTOR TREND's suggestions in "Gifts for Your Car," page 46. In order to get as wide a selection as possible for your perusal, we obtained the assistance of Accessories, Ltd., of Glendale, Sonny's Mufflers, of Monterey Park, and Newhouse Automotive Industries, of Los Angeles, who lent us the many items shown in the picture on page 47. We hope the suggestions will make your Christmas shopping easier this season.

THE PAN-AMERICAN ROAD RACE has gained much importance in its short history, for not only is it the biggest event on the American road racing calendar, but it is also the deciding factor in world championship standings for racing teams. Here's a lineup of the races that figure in the standings, so you'll be able to keep your eye on the ones that are all-important in the coming year: Sebring, March (Florida); Mille Miglia, April (Italy); Le Mans 24-hour, June (France); Francorchamps, July (Belgium); Nurburgring, August (Germany); Tourist Trophy, September (England); Pan-American, November (Mexico). The winning team will be awarded the Federation Internationale de L'Automobile's coveted Championnat Internationale des Voitures de Sport title.

WHAT DOES IT COST to operate a car? That's a question that's hard to answer if you consider driving habits, geographical location, car age, make and model, and whether the car is city- or country-driven. AAA, accord-

ing to the October issue of MoToR, has averaged these figures and come up with the following: If you drive 10,000 miles a year (average owner's mileage) your car costs you about \$980. This includes gas and oil (2 cents per mile), maintenance (74 cents per mile), and tire wear (51 cents per mile). Insurance averages \$101.05 each year, license fees cost \$16.23 yearly, and annual depreciation amounts to \$442.64.

THE CHAMPION Spark Plug Company, long associated with auto racing, and particularly in evidence at Indianapolis, has taken interest in the Mexican Road Race. This year, the company made its plugs available to all entrants, free of charge, and added to the race's \$100,000 prize money by offering prizes totaling \$3000 to drivers whose cars used Champion plugs throughout the race.

WITH A LE MANS WIN tucked under its belt, a 172-mph record run in Belgium (during these trials on the famous Jabbeke road, a prototype competition Jaguar turned 170 mph), and numerous racing wins in this country, Jaguar's popularity has increased to a point where the company can base prices on high volume sales. As a result, the entire line has had reductions ranging from \$190 (hardtop) to \$889 (modified open sports).

IT'S BEEN SAID that, if placed bumper to bumper, a single year's output from Chrysler's Detroit plants alone would reach from Detroit to Los Angeles. That adds up to something like 800,000 vehicles. We know where some of them go—to the showroom in your neighborhood, to ocean ports for overseas shipment, or any place that you'll find a car or truck produced by Chrysler. But how do they get there? How did your car get to your city? These vehicles travel a distance of 600,000,000 miles a year—but there isn't a driver in any of them. That's where Chrysler's traffic men take over—their job is to get the cars and trucks to their destination by train, truck, and boat. Keep in mind the fact that scores of thousands of other cars are routed to dealers from Evansville, Ind., and from West Coast plants at San Leandro and Los Angeles, Calif., and you'll realize just how big their job really is.

Here's how they do it: As the new cars are completed, the traffic department compiles a list of dealers who ordered the cars. This list is sent by teletype to the haulaway truck dispatch offices to be posted on a dispatch board. (Meanwhile, carrier drivers are loading their trucks with cars at a Chrysler Corp. yard, ready to start a run.)

Around the clock, the big trucks move cars from the lots near the Detroit plants. Thirty trucks can be loaded in 20 minutes with 120 new cars; at the end of the day, 2000 cars, aboard some 500 trucks, are on their way to dealers all over the country.

The longest run is handled by drivers working 10-hour shifts at the wheel; a fresh driver, stationed at a carrier way station, takes over after each 300-mile haul. An in-

tricate teletype network keeps the Chrysler traffic department informed of the movement of every car shipped, and of any unusual delay of shipments.

In case you've wondered about the snow-covered cars you see atop a truck, you can put your mind at rest as far as weather protection is concerned. When the mercury nosedives along a haulaway truck's route, the auto shipping company office teletypes a warning to the carrier-truck station nearest the trouble area. The carrier truck is flagged down, and radiators of all the new cars aboard are filled with anti-freeze.

We've all seen those freight cars marked "automobile," as we've waited at a grade crossing for a long freight to pass. Take a closer look at them next time, and you'll probably notice that they're some 10 feet longer than the standard 40-foot boxcar. The new cars inside these boxcars receive special treatment; equipment designed with this purpose in mind locks the shipment firmly in place.

When the ice-locked Great Lakes thaw out each Spring, lake freighters take on 400 to 600 passenger cars and trucks and carry them to Buffalo, Cleveland, or Duluth for shipment to cities near the lake ports. Ship-to-shore radio-telephones keep the ships in constant touch with Chrysler's traffic department.

Chrysler—with myriad operations to perform every minute of the day in every phase of production, in every plant—is able to keep track of every movement of its cars and trucks from the minute they roll from the assembly line to when they're unloaded in the parking lot behind the agency in your town; this is the job handled by traffic department personnel. From time to time we'll tell *Glove Compartment* readers more about the little-known facilities behind the production of their cars.

THE SPOTLIGHT was put on the Japanese auto industry recently by Stuart Griffin in a recent issue of *Automotive News*. Since July, 1953, Japanese vehicle production has increased to a point where 20,000 to 25,000 vehicles are rolling from assembly lines each month. Although no recent figures are available, Japan's production is aimed at a predicted vehicle population of one million units by the end of this year.

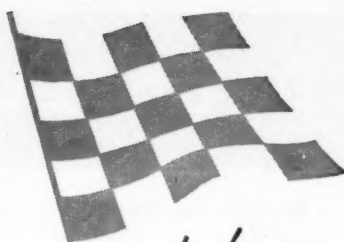
A Ministry of Transportation survey showed that there were 435,826 trucks, 94,215 passenger cars, 25,813 buses, and 198,089 motor scooters in operation.

OTHER WORLDWIDE automotive news which has come to light recently concerns admirers of the Jowett Javelin cars imported from Britain. The announcement that the firm would no longer make the Javelin was somewhat of a surprise, considering the fact that new models were shown at the International Motor Exhibition in London. An old-timer by many standards, the Jowett line has been in production since 1906, and output in recent years has reached 10,000 units annually.

Even though the recent announcement had a note of finality, the company added that the Jupiter sports car would continue to be manufactured.

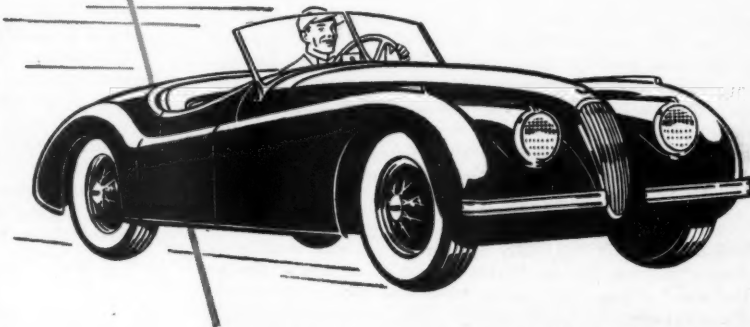
—The Editors

December 1953



World's **FASTEST** Sports Car

—with touring car comfort

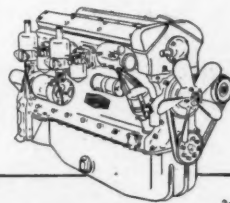


THE JAGUAR *XK-120*

LET'S LOOK AT THE RECORD!

- Le Mans, France, 1953: Placed 1st, 2nd, and 4th in the world's toughest endurance trial. Covered 2539 miles in 24 hours at an average speed of 105.8 m.p.h.
- Jabbeke, Belgium, 1953: 141.8 m.p.h., for new speed record.
- Monthery, France, 1952: XK-120 Sports Coupe averaged 100.31 m.p.h. for 16,851 miles, breaking all speed and endurance marks!
- Monthery, France, 1950: 107.46 m.p.h. average for 24 hours.

Combine these achievements with the safe, road-hugging ride, the direct, positive steering, the smooth power of the twin overhead-camshaft engine, and you'll know why Jaguar is—the finest car of its class in the world.



2-230E

JAGUAR

Hoffman Motor Car Co.
Importer East of the Mississippi
487 Park Avenue, New York 22

Charles H. Hornburg, Jr.
Importer West of the Mississippi
9176 Sunset Blvd., Los Angeles 46

THE FINEST CAR OF ITS CLASS IN THE WORLD

Seven

Spotlight On Detroit FYI...1954 DE SOTO

By Don MacDonald

DETROIT, MICHIGAN—Travelers on the highways in and around the Motor City these days are enjoying an outdoor auto show. Haulaway trucks headed for every corner of the country display the new models openly. There really isn't any need for secrecy; restyling on those announced so far has been so slight that it takes a sharp eye to detect the difference. For example, we had a good look at . . .

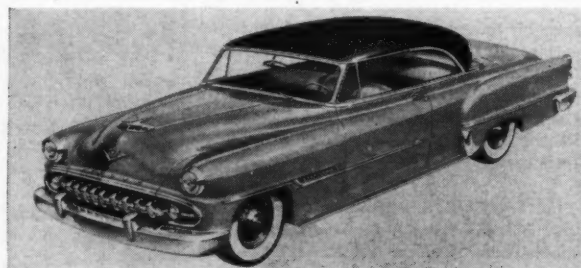
THE NEW CHRYSLERS which have undergone a tasteful but minor facelifting for '54. Windsor, New Yorker, New Yorker DeLuxe, and Custom Imperial each have restyled grilles that give the cars individuality within the family. You'll like the "eyebrows" over the headlights and the way the parking lights have been integrated into the design. New body chrome on the sides should give good protection against flying gravel and parking lot damage. All in all, nothing startling until you open the door and see the . . .

COLOR-KEYED INTERIORS that blend so well with your choice in body color. Vivid indeed is the New Yorker DeLuxe hardtop finished in turquoise blue with matching turquoise and black leather upholstery. This is smart merchandising which stemmed from a study of sales figures for hardtop models that happened to be color-coordinated in the past. One particular Pontiac, two-tone green with cream and green leather, accounted for nearly 80 per cent of that firm's hardtop sales in 1953. The customer does dictate to Detroit, most of the time. An exception is Chrysler's . . .

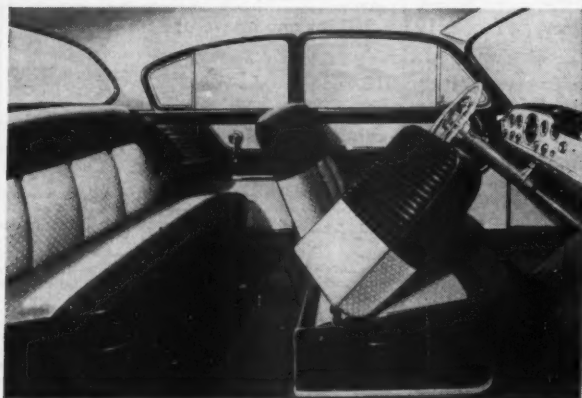
NEW INSTRUMENT PANEL, more readable than last year's but featuring a resurrection of flashing red lights for ammeter and oil pressure. We believe that the driving public can read and understand simple gauges. Some engineers don't agree, for the trend is to warning lights substituted wherever possible. Aside from this, our safety hat is off to Chrysler for their

continuation of the glare-proof, foam rubber crash pad now covering both upper and lower edges of the panel. An even more important change is a . . .

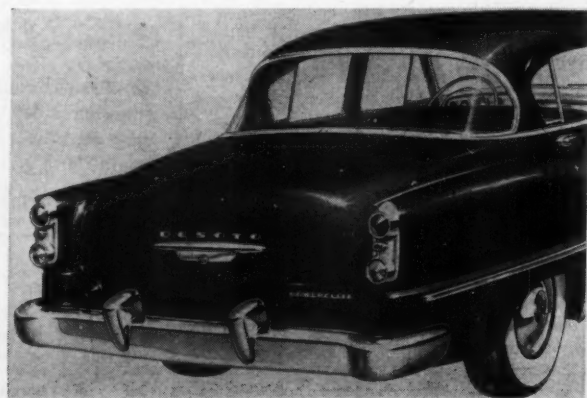
BIG BOOST IN FIREPOWER for the New Yorker DeLuxe and Imperial. Upped to 235 from last year's 180 brake horsepower, the revamped engine has a four-barrel carburetor, larger exhaust and intake valves and ports, and a new dual exhaust system. Couple this to PowerFlite (standard on all Chrysler V-8s for '54) and you have a performance package that packs a big wallop; 195 horses for the standard New Yorker and 119 for the Windsor seem tame by comparison. We have used the term "horsepower race" to describe the trend towards more power under the hood and perhaps that's a little unfair. The point to remember is that it's there to get you out of trouble—not into it. And speaking of trouble, watch out for those innocent-looking New Yorker club coupes that frequent the Pennsylvania Turnpike and some other toll roads. They contain troopers and . . .



The Sportsman, one of six models in the new DeSoto V-8 line, has a one-piece rear window, a nylon-and-leather interior. PowerFlite transmission, air conditioning are optional equipment

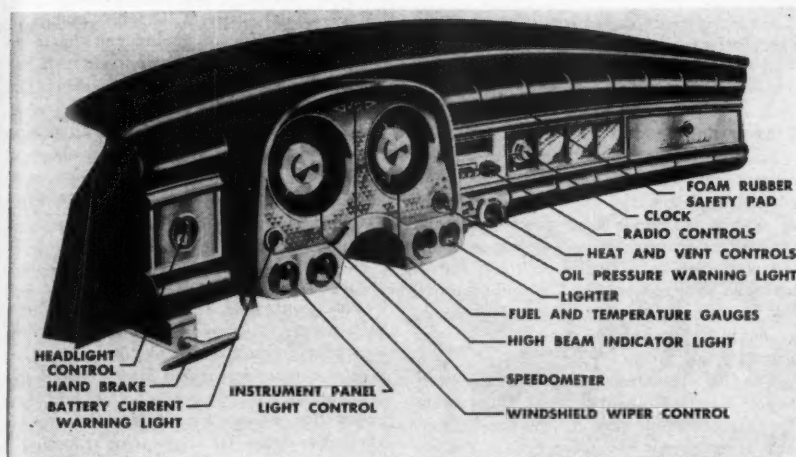


Styling highlights of the '54 DeSoto's interior are new fabrics and wider range of colors. Bolstered seats are nylon-faced for durability. Seatbacks and door panels are pleated vinyl



All '54 DeSotos equipped with the new PowerFlite transmission will bear the nameplate seen on the back of this Powermaster Six. Bumper and taillight assembly are new design features

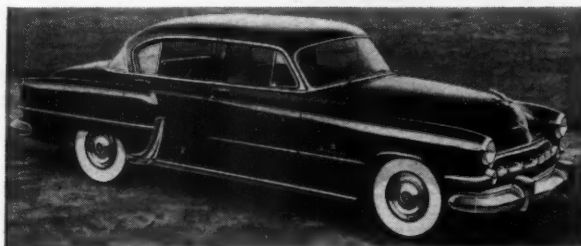
CHRYSLERS...BUICK SPECIAL TO HAVE V-8...SHELL'S TCP



The numerals, pointers, and dial graduations glow brightly against the dark background of the '54 Chrysler's instrument panel. Flashing indicator lights warn of low oil pressure and battery discharge. Foam-rubber-base pad covers top, bottom

One of Chrysler's most luxurious models, the '54 Custom Imperial features richly finished interiors. Mounted on a 135½-inch wheelbase, the Crown Imperial uses Chrysler's powerful new 235-bhp V-8. A town limousine is included in this series

CHRYSLER'S POLICE PACKAGE on the lookout for speeders and capable of catching them. Factory-built hot rods for law enforcement agencies are not new. Ford, for example, has been doing it for a long time. What is new is Chrysler's lead in making these cars available to the public on special order. For a price and a good reason for wanting it, you can have your new New Yorker (club coupe only) delivered to you equipped with special manifolding to accommodate two four-barrel carburetors, hard roller tappets, and all the rest that goes to make up a kit good for about 290 horsepower. Disc brakes are almost a mandatory option for this car. With Dodge, Chrysler, Oldsmobile, Hudson, and Nash now in the speed equipment business, watch for others to follow suit. We hope improvements in roadability will keep pace with this activity. A step in the right direction (see Driving Around, page 72) is Chrysler and DeSoto's . . .



NEW FRONT SUSPENSION, designed to reduce body-lean on turns. It does this by moving the roll center higher. Not to be confused with center-of-gravity, roll center is defined as that point about which the car naturally rolls or tilts. Also common to both Chrysler and DeSoto are stiffer frames, redesigned front and rear body mountings, and recalibrated Oriflow shock absorbers. Mechanically similar in almost every respect to its Chrysler cousins, DeSoto can no longer be considered the experimental car of the family. It brings glamour, comfort, performance, and also a new name . . .

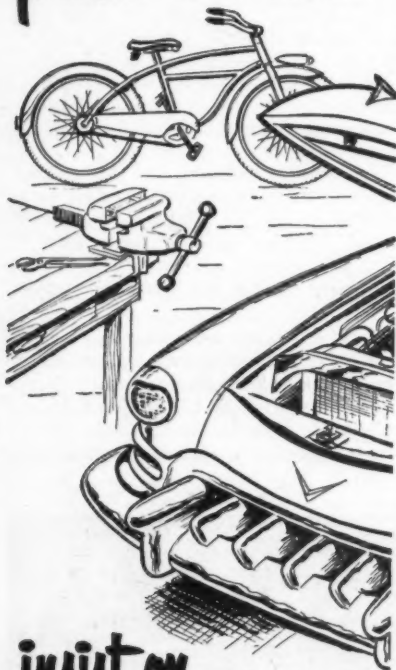
DESOTO AUTOMATIC, to the medium-price field. Fortunately, this is restricted to advertising copy and not scrolled in chrome on the fenders. The FireDome V-8 has been modestly upped to 170 horsepower while the reliable Powermaster Six remains essentially the same at 116. Both offer the option of PowerFlite, and with production of this transmission now reaching the 700

(Continued on page 53)



Powered by the new 235-bhp FirePower V-8, the sedan and convertible shown here are two models of the '54 Chrysler New Yorker DeLuxe series. New Yorker models have 195-bhp engines

CHAN NEL LOCK pliers belong wherever pliers are used



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CHAN NEL LOCK



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Look for the Channellock line when you're shopping for hand tools. Channellock pliers offer features that you can't get with other makes. And when you buy a Channellock plier, ask to see the full line—you'll find a style and model to do any job better.



CHAN NEL LOCK

THE PLIER DESIGN THAT OBSOLETE ALL OTHERS
CHAMPION D'ARMENT TOOL CO. • MEADVILLE, PA.

Letters

A PIONEERING SERVICE

Gentlemen:

Congratulations on MOTOR TREND's four years of successful automotive pioneering! Your September editorial was a timely reminder of your past service to car owners, and a most reassuring look into MOTOR TREND's future.

I think that one of Trend's most significant and valuable services has been the education of the car owner. Your exposés of dishonest and unethical practices among dealers and garage men have met a long-felt need. You have, as your editorial stated, managed to avoid becoming a trade journal, but you may not realize how much the legitimate dealer and repairman owes to your magazine.

The car racketeers until recently were setting standards of price, terms, and guarantee that were impossible for the honest operator to meet, and the more cynical and experienced owners have been unmoved even by guarantees offered in good faith by a reputable concern. Continuation of your present series seems to me to be the only way, in the long run, to assure that the honest businessman isn't driven into bankruptcy trying to meet, in good faith, the competition of claims made in bad faith by the racketeers. Keep up the crusade.

Thos. G. Atwood, President
British Automobile Co.
Hollywood, Calif.

We'll always keep up the crusade to improve conditions in the automobile business. That, as you have agreed, is our service to the car owner.—Editor.

OOPS! DID WE SAY THAT?

Gentlemen:

I'm surprised at you! . . . You certainly don't do much to further your business or mine by such rash, unfounded statements as that contained in the final paragraph on page 11 of your October issue.

May I suggest that whoever wrote that classic statement be sent back to a high school economics class to study the basic principles of the great American system of mass production and mass distribution . . . which is made possible only because of advertising!

Sure, there are advertising costs included in the price of every car. But advertising doesn't make a car cost more. Ask Ford Motor Company to build you one of those great Model A Fords of 1929-30 style today and check the price against a 1953 model Ford . . . mass produced, advertised, and sold.

Need I say more?

Arthur L. Higbee, Manager
Radio Station KSUB
Cedar City, Utah

Gentlemen:

I was stunned by the implication in your last paragraph, page 11, October issue. . . . I am sure I need not remind you that were it not for informing the public through advertising, you might still be hitching Old Dobbin to the shay . . .

To say that advertising forces anyone to pay more for a car is just as ridiculous as your trying to tell us you could give us as excellent a magazine as yours for 25¢ without it.

John C. Ray
Rocky River, Ohio

We agree that the statement we made was basically unsound. Advertising costs of any business are of course absorbed in the final cost of a product or service, but advertising creates a mass demand, a mass demand creates the need for mass production, and mass production of any item brings the production costs down. Of course, this reduction is passed along to the ultimate buyer.—Editor.

ADVICE FROM THE WIFE!

Gentlemen:

I have thoroughly enjoyed the pros and cons on the story, "I Married a Car Fiend." In my opinion the greatest mistake a man can make is to expect his wife to share naturally his enthusiasm about cars.

How often does a woman have the opportunity to really learn about cars? I feel that if a man will treat a woman on an equal basis in this matter he will find that she will be as car-miased as anyone.

In short, women should be educated on the subject. They have to be taught and learn the same as you.

So fellows, when your wife has a question, answer it; don't smile and change the subject. I'm sure that you will find that a few good, simple answers will lead to bigger things.

Lois Anderson
Lyndon, Ill.

We hope they do.—Editor.

FOR DOGGY CARS

Gentlemen:

While inspecting a shipment of imported English bone-china show dogs, in natural color and in relief, I conceived the idea of reproducing some of the most popular breeds in plastic or other suitable material, about 12 inches long, and attaching them to the doors or near them on sports cars for eye and sales appeal.

My problem is to find a manufacturer to make these ornamental dogs. I am positive that my idea will be accepted by owners of fine cars.

Leslie H. Sawyer
1443 N. Coronado St.
Los Angeles 26, Calif.

A STYLIST SPEAKS HIS MIND

Gentlemen:

You asked for comments on Mr. MacMinn's "Trends in Design" (July MT). In the first place I was delighted to see that MacMinn has put into words an impression which has been mine ever since I chopped my first Model T.

While I agree most sympathetically with the nub of MacMinn's discussion, I would like to point out what I think is a far more basic foundation of vehicle design than the "ellipse and datum" combination which MacMinn credits to George H. Lanchester.

Symbolically the ellipse, or particularly the bird's egg, is the essence of self-containment and certainly lends itself to the concept of space travel as realized in airfoil sections, projectiles, etc.

But the motor vehicle is basically earth-bound. Its styling is unalterably tied to the horizontal datum of the roadbed. Yet it must exemplify forward motion in every line of its styling. A few of our past styling geniuses have evidently recognized this, as did the Greek masters and their predecessors when they chose the breaking wave or the meandering stream for their frieze motifs.

In my humble opinion, automobile styling of the early Thirties was the zenith of the art. For, indeed, no other period adopted a forward flow of line so perfectly falling into the breaking wave frieze of the Greeks.

Now, as to where automobile styling is headed. My blunt opinion is that it has gone just about as far as the buying public will stand in the direction of inflating sheet iron boxes to the bursting point with complete disregard for the symbolism of land travel. Let our automobile stylists look back to the early Thirties. Let them ask themselves honestly if they don't think a 1932 Chevy roadster is a good deal more soul-satisfying than modern day attempts to put as many yards between headlight and tail-light as inadequate parking spaces will permit.

Austin Armer
Sacramento, Calif.

Mr. Armer has noted that he is now an agricultural engineer, having spent several years in the automobile industry in the design of accessories. Well, he's had his say, but we have a feeling it won't stop here; modern stylists are known to be quite vociferous.—Editor.

CUSTOMIZING—HOW TO DO IT

Gentlemen:

I was wondering if you could give me the information on customizing a '52 Ford Victoria . . . I would like to chop the top and put a Carson padded top on for the summer . . . I also intend to repaint and strip the car of some chrome. I would like to know about the molding and brazing.

Donald Dammann
Glencoe, Minn.

Pick up a copy of "Custom Cars 1954 Annual" (Trend Book No. 109) at your newsstand. It gives step-by-step instructions on dechroming, welding and brazing, sectioning, etc.—Editor.

December 1953



Speed-lite 200,000
CANDLE POWER
FOR SAFETY
AT HIGH SPEEDS

\$11.95
EACH

100 Watt

Specify 6 or 12 volt.
Available only from:

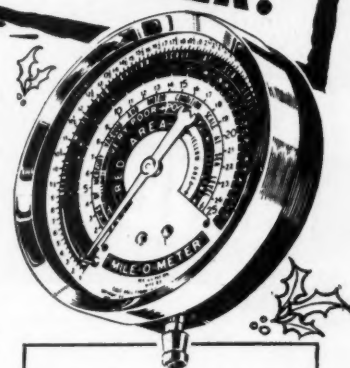
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- Special Sealed-Beam Unit. Same as used by Airplanes in Night Landings.
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- Modern Flat Pyrex Lens.
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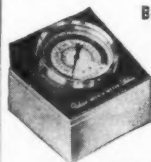


Let your family know that you want the famous Mile-O-Meter this Christmas! Thousands of men did just that last year . . . and were "surprised" with the valuable and useful automotive gift they wanted most! Mile-O-Meter is the dashboard version of the well-known Gale Hall professional engine analysis gauge . . . it continually indicates engine condition, warns immediately when engine troubles are developing, and shows relative miles per gallon as you drive! It's what you need to get all the performance your car can deliver! Simple to install on the dash—fits all cars—no holes to drill—all directions and fittings included. The chrome and black Mile-O-Meter actually pays for itself in less than six months . . . tell your family today!



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MILE-O-METER SHOWS

miles-per-gallon



engine condition



engine troubles

FREE with MILE-O-METER! Gale Hall "Dashboard Manual", complete with trouble-shooter chart, tips on economy driving, tune-ups, etc.!

\$14.95

- Deluxe Illuminated.
- 1 1/2" diameter
- Chrome trim.

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Orders are shipped within 24 hours anywhere in the U. S. A. We pay postage when payment accompanies order. Add 35c for special delivery, if desired. Each Mile-O-Meter is gift-packaged, with all accessories and instructions included.

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MINDER**

If his car is his hobby, the "Custom" Model Motor Minder is for him this Christmas. This precision instrument is a driving gauge and engine analyzer... all in one. A must for every driver who wants to get the most from his engine.

Checks Engine Efficiency

Motor Minder warns instantly of poor performance by spark plugs, carburetor, valves, rings—indicates faulty timing of ignition or valves—helps you save gas. Beautiful indirectly lighted dial of new "Custom" model has no confusing scales, can be read easily and instantly.

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Motor Minder records accurately even on modern high-compression engines. New swivel mounting gives all-angle vision. The lowest priced in its field with traditional Stewart-Warner quality.

Get it at your dealer's. If he cannot supply you, send his name and address, and your check or money order for \$10.95 to Stewart-Warner. Motor Minder will be sent direct to you prepaid!

STEWART-WARNER

Instrument Division, Dept. W-123
1840 Diversey Parkway, Chicago 14, Illinois

Editorial

Thrills with Sanity

LEST YOU THINK that MOTOR TREND has suddenly become strictly a sports car magazine, with a cover devoted to sports cars, a story on how the sports car is evolving, and a story on Detroit's version of the sports car (the Corvette), let us hasten to explain that such is not the case. You plan a magazine well in advance, making it well-rounded to include all types of articles for all types of people, then sometimes everything seems to break at once. This is one of those months.

We had planned an article on the history and evolution of the sports car for a long time and had selected a cover to go with it. Then the full story broke on the Corvette. We knew you wouldn't want us to hold back that story, so we dropped that in (page 34). That's the why of so much space devoted to sports cars this month. And now, since we're on the subject of sports cars, let's talk about the road racing enigma.

The turn that road racing has taken in the last year or so seems to point up the importance of drastic action or extreme caution. Just as sure as this type is black on white, road racing will be killed if more positive controls are not taken to curb spectator accidents. There are some who say that spectators should not be allowed to spectate—that it's a sport for drivers and intimate friends of drivers. Others say, "Them that do takes their chances... look how many people have been killed watching racing in Europe. No one's concerned about it there."

These are both shortsighted viewpoints. In the first place, any type of event that is competitive will draw crowds. Mix with this the excitement of roaring engines, spinning wheels, the smell of burning rubber and pungent exhaust fumes and you invariably have a mob on your hands. So the drivers and competitors have to face it: There will be crowds and there must be some method devised to cope with them.

Don't expect anyone in this country to venture seriously the opinion that spectators should watch out for themselves. Any person so naive as to think that has only to recall our nation's history in regard to lack of suicide squads in time of war, and the revulsion toward massacres, killings, and the like, and he'll realize how utterly ridiculous such an attitude is. We just don't have a fatalistic attitude, as do most Europeans.

So what can be done?

One of the answers seems to be the airport race. At least there you can keep the crowds well back from the cars hurtling down the high-speed stretches, and at a reasonable distance from the cars sliding

around the corners. Airport racing has many other virtues. There are a lot of abandoned or little-used airport runways throughout the country. In fact, with the cooperation of Air Force officials, it is sometimes possible to stage a race on a base that is still in active use. A good example of this is the SCCA races held at the March Field Air Base in Riverside, Calif., as this issue went to press.

But unfortunately airport racing lacks the glamour of road racing on roads where the spectator can imagine himself driving back and forth to work. The answer to that, of course, lies in a road course on private grounds.

We hope that the foresight and courage of one promoter will be followed by others.

During a recent jaunt to Wisconsin from Detroit, we had the opportunity to visit a place we'd heard about and had wanted to see—the Wilmot Hills Road Race course. Located in the southeast tip of Wisconsin, 20 miles east of Kenosha and about 90 miles north of Chicago, this course has the potential of becoming one of the finest courses in the country. It's 24-foot-wide blacktop with upgrades and downgrades, a sharp S-turn, an extreme right-angle turn and two long straights, making a total circuit of one mile.

The course is nestled in a hilly section, with one large hill alongside that rises to the height of a 15-story building. From this hill, and on the slope facing the course, spectators can sit and watch the race. Almost the entire course is visible from this vantage point. The entire area is fenced in to prevent people from wandering into the area (for two reasons—to prevent them from getting in free and to preserve their lives). The builder of the course, race promoter Harry Danforth, says, "I know spectator control is important. I had lots of experience with that. If someone strays onto the course, I'll stop the race. We don't want any accidents here and the way we have it set up, we shouldn't have any."

Danforth has more improvements planned for the future. They've had two races on the present course, both highly successful events put on by the Chicago Region of the Sports Car Club of America, and the events should be even better next year. An extension of the course will add a section of road through some trees and over a bridge. Danforth says, "We want to make it as realistic as possible."

We'll be watching this course with more than casual interest. It may be one of the answers to the road racing enigma. We sincerely hope so.

—Walter A. Woron

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the readers of **MOTOR TREND**
we are *Repeating November's ad*
and adding a **CHRISTMAS BONUS!**

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By joining BACHELOR CLUBS OF AMERICA you will get monthly reports in Motor Trend on forthcoming local parties, cruises, auto excursions, Balls and other events in YOUR area, plus free Travel Service Information, and an excellent Discount arrangement on gifts and appliances you wish to purchase. By participating in the Club affairs you will "rub shoulders" with top celebrities, socialites, movie stars and leading business executives.

MEMBERSHIP ENTITLES YOU TO:

1. A 1 year subscription (12 monthly issues) of MOTOR TREND (newsstand price 25 cents each).
2. Bachelor Club Membership lapel pin.
3. Bachelor Club windshield decal for your car.
4. Gold embossed Bachelor Club Membership card, with Travel Service and Discount House information on back.

Fill out the coupon below and enclose 10 dollars (check or money order) which includes cost of handling and you will automatically become a member of the world's most exclusive Club.

Bonus

ANN HORNE,
socialite model, displays samples of the special Christmas Bonus, offered only to readers of this magazine of a \$10.50 value of 3 official Bachelor Club approved, all silk repp stripe neckties for \$5.95 postage prepaid and boxed. Mail checks or money orders (no more than 2 orders to an individual as the supply is limited) to the Bachelor Clubs of America, 1733 Broadway, The Buick Building, New York 19, N. Y.



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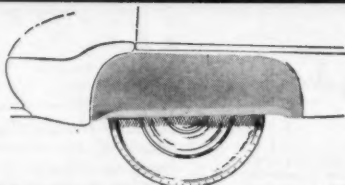
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NEW FENDER SKIRTS (49-51 Fords) Quality 22 gauge steel-flared for style. Reg. \$9.95. Special club price \$6.95 (Limit one pair per member).

OLDS OHV MOTORS: Complete with carbs, generator, distributor, etc. Reg. \$350.00. Club price \$262.50. This is a great savings, as there is no exchange required.

FORD & MERC TRANSMISSIONS (41-48). Reg. \$35.00. Club price exchange \$26.25.
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GENTLEMEN: Enclosed is \$5.00 for one full year's membership in the Auto Parts Discount Club.

name.....

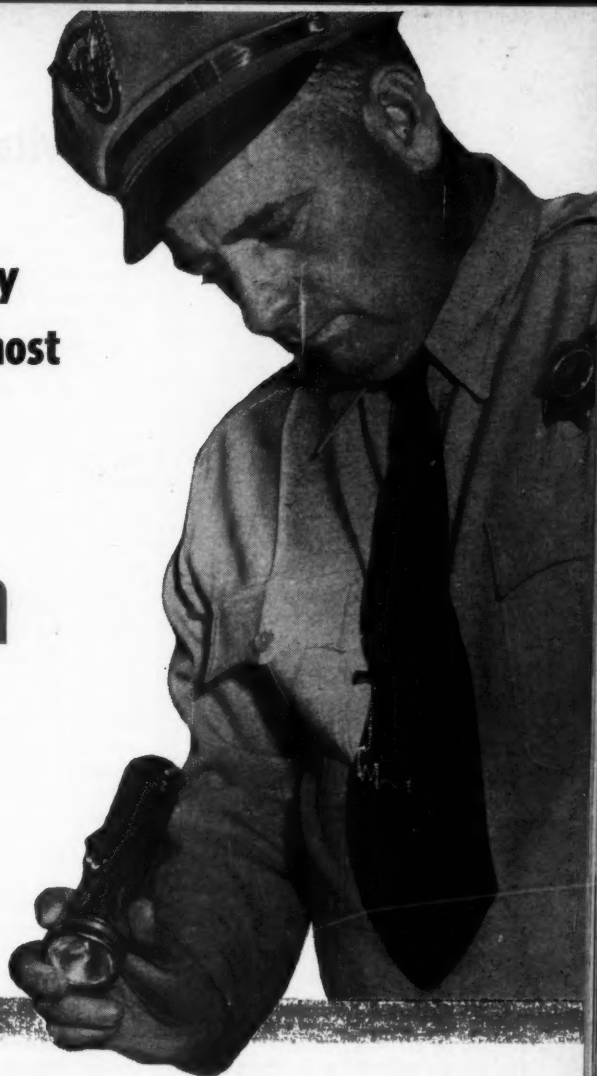
address.....

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**You've got to be good to stay
alive in one of the nation's most
dangerous jobs. Can
that next call be . . .**

an invitation to DEATH?

By Ivan T. Galanoy



A suspicious car parked along a dark stretch of highway. Car trouble, or . . . ? Highway patrolmen must always approach ready for action

THE CALIFORNIA HIGHWAY PATROL has a trouble signal called "Code Three," which, according to regulations, means "Proceed to emergency, full speed, red light and siren." To the 1500 uniformed officers of that organization, Code Three has pretty much come to mean an engraved, personal invitation to death . . . sometimes their own, but in the majority of cases, the high-speed, whimpering type of death which marked the 1800 traffic fatalities in their state during the first six months of this year. So bad has the motor murder problem become that each highway patrolman now carries the order, "Stop the highway slaughter," as surely as he carries a book of citation blanks and a .38 Police Special revolver. No order could be blunter.

To take a look at the typical highway patrolman and his unending task, MOTOR TREND recently rode with four patrolmen on three eight-hour shifts out of three



an invitation to DEATH?

continued

varied locales: the resort city, Malibu; traffic-choked industrial Compton; and along a notorious accident strip, the twisting, mountainous Ridge Route, a few miles northeast of Los Angeles.

This is what we learned about the men and the duties of the highway patrol during that ride.

With the responsibility for all state and unincorporated county roads and highways on its hands, the patrol has a job which covers some 2½ million miles of every imaginable kind of road every month. Because California leads all states and all foreign countries in motor vehicle registrations, because most of California's drivers are self-imported from the other states, and because California highways are wide and fast, the motor vehicle accident rate has been clambering upwards for the past 20 years and gives little indication of slackening by its own accord.

The state's biggest, most effective answer to the traffic toll is its force of 1500 highway patrolmen. Their orders, from

top to bottom, are to stop the highway carnage, using all available methods. The orders have the urgency, the immediacy of an all-out, Code Three alarm.

The highway patrolman, 1953 style, is a fast-thinking, courteous, tan-uniformed man who stands between five feet, nine inches and six feet, four inches tall, and is between 21 and 65 years old. He is well qualified, through special training, to patrol the state in any of the specially painted and marked 800 patrol cars or 300 patrol motorcycles. Inside, the patrol cars are fairly stock in appearance except for a special meter on the dash which watches the current flow for the red and blue lights in front, the single red light in the rear and the energy-consuming siren. Switches for the additional equipment are close to the driver's left hand. In most cars, an eight-column "hot car" sheet is propped near the windshield for fast reference. Other than these additions, a calibrated speedometer, and the small microphone and police radio control panel under the dash center, the car interior is ordinary-looking, and even sports a sprightly set of brown tweed seat covers. This is the patrolman's home for eight hours a day. It is the home in which he lives and helps build up that 2½ million mile patrol every month. Sometimes it is the home in which he dies.

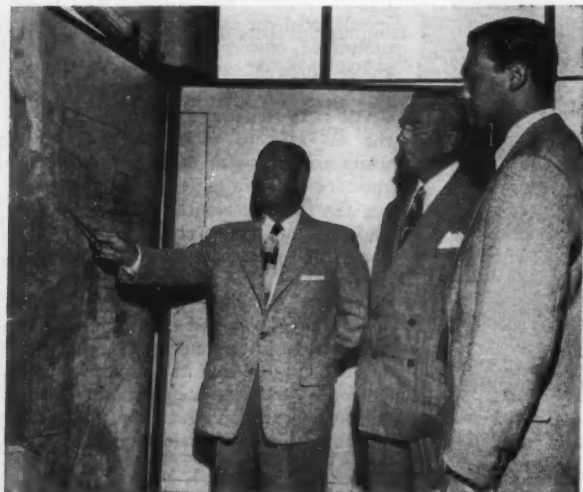
Since the patrol was organized in 1929, 72 patrolmen have been killed and 2125 injured in the line of duty. Typical of the hazards facing the patrol was the accident suffered by one officer who was escorting an emergency ambulance to a hospital; although the motorcycle's siren

was wailing loudly and its lights were blinking, an automobile swerved sharply out of lane, sideswiped the motorcycle and sent the patrolman hurtling 70 miles an hour onto the concrete roadbed. He spent six agonizing months in the hospital with a broken back, internal bleeding and multiple injuries. Discharged back to duty, he automatically became a member of an unofficial but exclusive club of patrolmen who have been "run down" in some way or another by motorists.

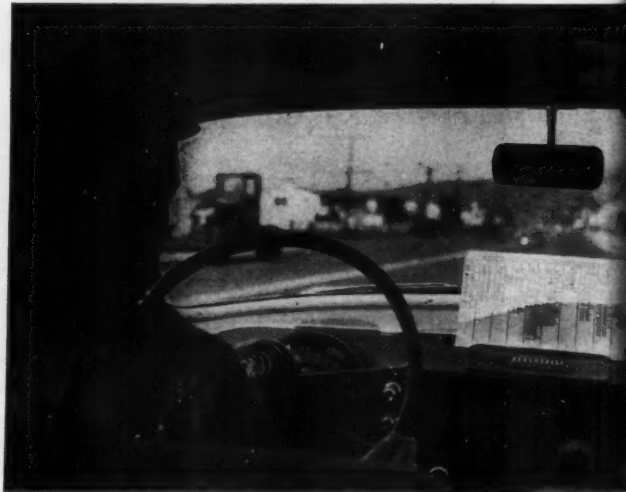
In another case, this at night, a patrolman had pulled a speeder over and was checking the offender's driver's license when a careening motorist sideswiped the parked patrol car, injured the driver who was standing outside, and killed his night patrol partner immediately.

The patrol's 12-week training course at the State Patrol Academy in Sacramento gives complete instruction in identification, weapons, self-defense, driving, traffic and riot control, accident investigation and many other subjects . . . including innumerable, valuable tips on how to stay healthy and alive on one of the nation's toughest and most dangerous jobs.

Patrolmen are taught to park their cars behind the offender's vehicle, always locating their vehicle at least a foot closer to the road than the front car. This becomes second nature to patrolmen who know, or are in the process of learning, that their cars offer maximum protection to the officer in cases like the one just described. When an offender is stopped at night, the arresting officer is always covered by his partner. Both officers, after dark, carry their gun hands unencumbered and close to unbuttoned holsters. Nor is



Supervising Inspector Russell Emmett, left, and District Inspector L. M. Eaton explain patrol activities to author, right



Checking licenses from "hot car" sheet, patrolmen recovered 1321 stolen cars of 1504 vehicles reported stolen in one month

Photos by Jack Campbell

that a highly dramatic approach to the simple task of ticketing an average speeder; it is for the drunks, the drugged, the criminally minded, who toy with the idea of sudden hit-and-run or surprise physical attack. Before they rode in pairs, many highway patrolmen were unmercifully beaten when they stopped carloads of young toughs or small-time criminals at night. California, like many other states, has lost good men by not being overly wary in protection of its night patrol.

Alerted to spot trouble symptoms or irregularities fast, two officers with whom we rode had spotted the following in the first nine minutes' investigation of a suspicious parked car: The occupants were from Ohio, broke, out of work, without draft cards, proper automobile registration or drivers' licenses. The right front tire was the only non-white sidewall and appeared to be property of an oil company, the license plates were dog-eared as though forcibly removed at one time, the car bill-of-sale looked forged, the four youths in the car had never heard of gasoline stations, restaurants or hotels which were named on the matchbooks, paper and pencils in the dashboard compartment. The patrol had found the car in Los Angeles territory, and called the Los Angeles police to give the boys and the car a complete "check-out."

Maintaining complete innocence throughout the preliminary examination, the four young men indicated to the patrol that their only recent income had been three dollars, "given to us by a nice lady in a phone booth."

Typical of the patrol veteran's attitude toward explanations of this type was the comment, "Three dollars from a kind lady in a phone booth, hmmmph! They

probably knocked over the phone, then kindly thanked the operator . . ."

Most of the highway patrolmen see or hear little that is new to them, for they've been on the job a considerable period of time. The patrolmen interviewed by MT had an average of eight years' service, and three of the four had served with local police units before joining the patrol. All four, because they had their first four years behind them, were receiving the state patrolman's basic maximum pay of \$437; they must put in 20 years of service before retirement, unless they reach the patrol's automatic retirement age of 65. The patrolman's pension income depends upon his rank and length of service at the time of retirement.

Each uniformed member of the highway patrol is capable of handling multiple tasks and handling them well. Picking its men by competitive examination, the patrol is certain of getting officers who can be combination marksmen, safety experts, road engineers, psychologists, detectives, guards, educators, mind-readers, diplomats, family advisors and accurate observers. In a single eight-hour day an officer might be called upon to patrol the highways on a motorcycle or in a car, check trucks for mechanical malfunctions and overloading, search for stolen vehicles, assist local police in emergencies, or escort the governor, VIPs, military convoys or secret shipments from one point to another; he might give safety lectures, give driving tests to school bus drivers, or examine the condition of school busses; he is qualified to license official brake and lamp stations, administer first aid, investigate accidents, direct traffic, and to be a vital station in a complex network of radio, telephone and teletype communications. And all of this,



All duties don't involve traffic problems. Here, an officer warns tin-can targeteers to practice away from busy thoroughfare

or any of it, he does swiftly, efficiently and courteously. Through this, the highway patrolman is doing his job, protecting the state and the citizen, whenever or wherever he is needed.

A patrolman might often feel that his job is but a series of sickening disappointments. (Continued on page 70)



Officer Frank Dare turns an unbiased ear to an unfortunate motorist as he fills out a routine-but-detailed accident report



Patrolmen Onis DeGray and Earl Foster check a suspect's license. Author Galanoy observes scene, which could become explosive

GERMAN AUTO INDUSTRY

From near-total destruction, Germany's factories have revived to build some of the world's best cars

By Gunther Molter

European Editor

THIS ARTICLE concerns the German automobile industry of the Federal Republic and does not include factories in the Soviet-occupied zone, since conditions there are abnormal. I tried to get that picture by writing the plants there, but received no answers. And for me personally to pursue the quest . . . well, my freedom means too much to me.

In one corner of the Daimler-Benz museum in Stuttgart stands a two-wheeled vehicle which smells pretty awful and crackles and spits fire whenever it's driven. Built by Gottlieb Daimler, the world's first motorcycle still runs today. If you don't believe me, ask Gary Cooper, who rode it early this summer while ordering his Mercedes. In 1885 this two-



The Daimler Benz factory in Stuttgart-Untertürkheim looked like this after a World War II bombing raid. Now restored, it builds one of Germany's widest ranges of cars



wheeler drove over the rough streets of old Cannstatt under its own power. Its journey was symbolic, as it were, since the primitive Daimler engine became the basis for power assemblies of today's best-known cars. And the man who designed it laid the cornerstone for the world's oldest automobile factory, Daimler Benz AG. Many other factories have followed, all bearing distinctive names and, for the most part, enjoying a tradition even as Ford in Detroit. Their growth is a chapter in the history of German industry, which rose sharply after the turn of the century.

For all practical purposes, the German automobile industry began a new phase at the end of the war on May 8, 1945. This turning point led to a lasting modernization of the industry. When the last rulers and military representatives of Hitler's "1000-year Reich" signed the surrender at Reims, the majority of



NORMAN ASHE

GM's giant Opel plant in Rüsselheim builds the four-cylinder Olympia Rekord and the newly announced six-cylinder Kapitän

German automobile factories were in ruins, a grotesque tangle of bent steel girders. That was the result of "total war" and the exacting demands of giant bomber squadrons, which turned modern factories into piles of rubble in a matter of minutes. And when the planes left, artillery swept over the land like the Four Horsemen of the Apocalypse. What was left then became a sacrifice to reparations claims which sometimes exacted the last due (the BMW factory kitchen in Munich was denuded even of cooking utensils).

Things were much worse in areas plundered by the Soviet Army, where many valuable machines were roughly torn apart or carelessly packed in railroad cars to be rendered useless by the ravages of weather. Construction plans, experimental departments, and patents were accessible to all. Production lines were as little intact as subsidiary plants, blast

furnaces, and steel works. In a bad state also was the Germany currency. Each Chesterfield or Lucky Strike, every piece of soap or pound of coffee was worth more than one of the mark notes issued by the German Reichsbank. Nevertheless, cars were produced. The secret was work and more work despite hunger and privation. It was the same in other parts of the world. In 1945 Germany built 1293 passenger cars; in 1946, 9962; in 1947, 9541.

In June of 1948 a currency reform made the German mark stable once again. With it, a sound financial structure, indispensable to every business, was re-established. From then on production figures mounted rapidly. 1948 saw 29,945 new passenger cars; 1949, 104,054; 1950, 215,354; and 1951, 263,471. For 1953 the Volkswagen plant alone expects a production of 160,000 passenger cars.

Such reconstruction and rehabilitation were accomplished fastest in the U.S. Zone.

Today production areas have been rebuilt for the most part; machinery is the most modern available. It was the logical consequence of the dismantling policy.

It is obvious that in the new beginning the German automobile industry was not in a position to produce new models. The occupation troops were its best customers, and the rest of the car-hungry world practically tore the factories apart for anything self-powered with four wheels. From such a situation arose a complicated system of business operation in which you could buy a car only after receiving a delivery certificate; money was secondary. First, pre-war models were manufactured. Gradually improvements were incorporated, but fundamentally, cars remained as before. The acquisition of materials was of prime importance. For instance, the Ford plant in Köln had its own force whose only duty it was to search the countryside for raw materials.

CONTINUED

GERMAN AUTO INDUSTRY

continued



Mercedes' newest offering in the stock car field is a deluxe four-cylinder L-head called the 180. Entire front end slips off for repair. Car uses traditional swinging axle at rear

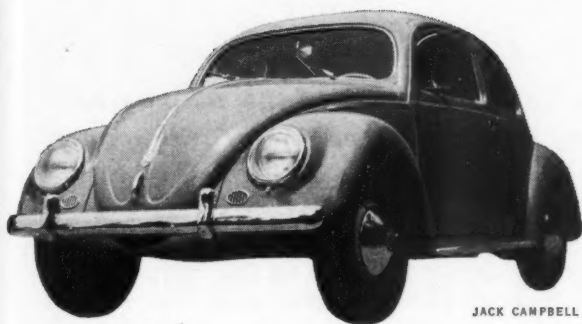


PHOTOS COURTESY DAIMLER BENZ

Familiar Mercedes radiator grille lifts with alligator-type hood. Body lines show timid approach to U.S. design trends



Competition queen of the Mercedes line (and of the '52 Pan-American Road Race), the 300-SL. Here is the latest version



JACK CAMPBELL

Best-known German export car is the Volkswagen, rear-powered by an air-cooled flat-four and finished like an expensive car



RODOLFO MAILANDER

The Lloyd, whose German supporters mostly drive a plywood-sided version of this car, uses metal to tempt foreign buyers

of cowhide is a work of art. Today's heaviest production is in the up-to-1.5-liter (91-cubic inch) class. In 1952 a total of 191,647 cars appeared with engines in that class, and 63,290 cars and diesel power units used bigger powerplants. The reason is easily explained: economic conditions, the highway setup, and (particularly in Germany) the financial policy make it impossible for the average European citizen to drive a large automobile.

It is ironic that the Germany automobile industry, which produced an Otto, Diesel, Daimler, Benz, and Maybach, should be hindered in its development by extraordinary financial burdens. Today's progressively increasing taxes have forced the automobile industry to attack the government. The vehicle tax is figured according to displacement; every six cubic inches costs \$4.50. That means that a Volkswagen carries an annual tax of \$54. Then there's the legally prescribed liability insurance, figured according to

horsepower. Only the man who can prove that his car is used only for business purposes can write off maintenance costs from his taxes. He can also write off the vehicle tax and liability burden, and is permitted to deduct the cost of his car. Annual depreciation amounts to 20 per cent for middle-size cars and 25 per cent for smaller ones. Anyone who buys and drives a car for private purposes has no possibility of tax favors.

Let's say that a technical worker in an automobile plant earns an average hourly wage of 50 cents gross. A Volkswagen export model costs \$1300, so theoretically he must work 2600 hours to buy a car. In practice, naturally, the working hour average is higher, since tax, social security, and health insurance deductions must be made. The average income for minor officials is about \$125 gross; a secretary earns about \$95 a month.

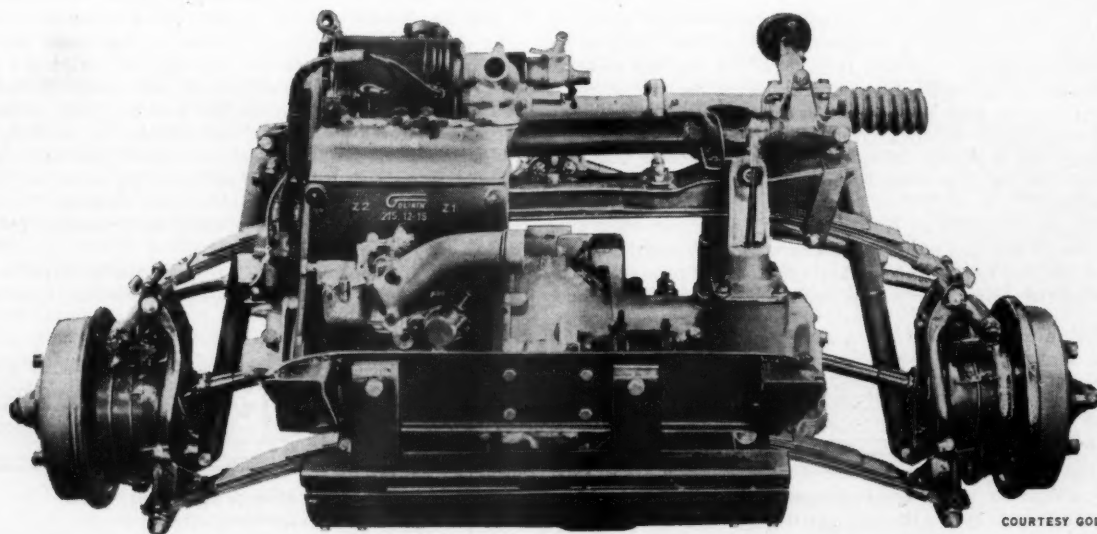
During 1951, a boom year, almost all cars were bought for cash. Today, almost 75 per cent of all purchases are made

either through individual financing or banks. Twenty-four-month contracts are in preparation. Car shortages produced by the war are almost all gone. Principal customers of the industry today are those factories and business establishments that can write off their cars as business expenses. If a tax policy change doesn't open up new possibilities, Germany's automotive trade will pursue a doubtful course.

Export trade is increasing, but there, also, difficulties are encountered in regaining markets lost through the war. At the moment Daimler Benz is first in actual value exported, while Volkswagen and Opel are first in the number of units. Porsche exports the largest percentage of its production. In 1952 the industry exported a total of 99,988 passenger cars worth \$107,380,750, the largest portion going to Brazil and the United States.

Cost of gasoline, oil, service, and repairs is relatively high. A garage rents

(Continued on page 55)



COURTESY GOLIATH

One of the least conventional setups, even for Germany, is this Goliath power train. The two-cycle engine powers one of the most popular of the very light, economical cars



Early hot rods scorched the toupees of passers-by. Today's engineers still scratch their heads in search of better

exhaust systems

By Dick van Osten, Technical Editor

THE DUTCHMAN HUYGENS built his gunpowder engine in 1680 (probably the origin of the word "bomb" as applied to cars) and ever since, mechanical engineers have been faced with the problem of exhaust gases. But through the experimental periods of Cugnot and his steam car, of Beau de Roche and the first two-cycle engine, to Otto and Langen with their experiments in illuminating gas as a combustible medium, no one worried much about the exhaust problem beyond providing a hole for it. It wasn't considered worth bothering about until the turn of the century. Up until that time, designers took engine noise for granted. Their attention focused on the creation of the automobile as an entity, not on engines alone.

History points up early public reaction to this noise by recording statutes condemning the automobile as a menace; late 19th Century American prints concentrated on rearing horses spewing their riders feet over forehead to the ground at the sight (and sound) of the horseless carriage, but history fails to place the blame for this legal and artistic criticism that brought about the development of the muffler.

The delicate sensibilities of the Victorian woman fabled in fact and fiction probably brought the demand for silencing the horseless carriage's bark and bang. Not that she was going to ride about in the contraption, but it disturbed her Sunday cruise to the country with her man by her side and a team of spirited and many-gaited horses in front. So, to relieve the mounting tension and ill-feeling toward the early automobile, engineers turned their hand towards development of exhaust systems and mufflers.

Far less offensive to both driver and bystander than using the simple hole was to direct the exhaust away from the driving area. This led to the use of a short pipe, usually pointed directly toward the ground. Early American highways did not lend them-

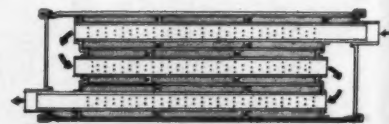
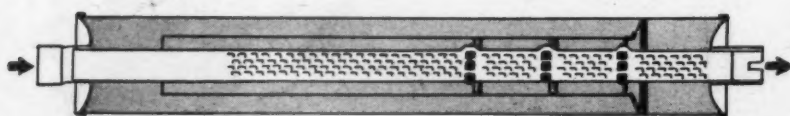
selves to this school of thought, so the exhaust pipe was extended to the rear, more or less parallel to the ground. Gaslight hot-rodders claimed the added pipe decreased performance, so they stuck to the "stub" school of short horizontal pipes at a convenient eye level that blew bystanders' headgear through the window of the local tavern.

The extension of the exhaust pipe to the rear solved the problem of gas disposal but did nothing for noise reduction. The first full-scale attempts to lower the noise level began at this point. Hand-in-hand with sound experiments, engineers began research on exhaust tube diameters in relation to engine efficiency.

Although the principle of reducing noise level by expansion and/or mechanical baffling of the sound waves was not new, it was some time before exhaust researchers applied it to the newly developed automobile. The first mufflers recorded in automotive history show these principles in simultaneous use. Early baffles were merely perforated plates or caps over the end of the exhaust pipe, restricting the flow of gases. This created back pressure, another variable. Early expansion chambers were made by the simple expedient of putting a large metal shell in the exhaust system with one "in" and one "out" opening.

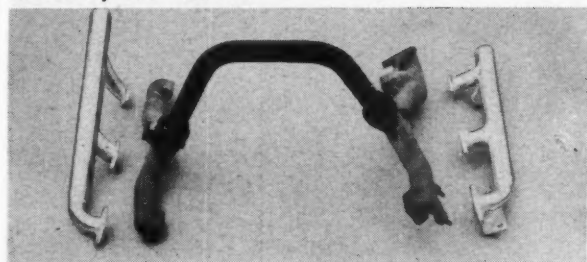
As muffler experimentation continued, so did development of the internal combustion engine, creating more problems for those dedicated to making the automobile a silent, pleasant thing to drive. By-products of new fuels presented a corrosion problem. So what had been a polite attempt to satisfy the distaff side of society became a full-time part of automotive development that embraced engines, materials, methods, and production.

A third group of thinkers applied Hiram Maxim's principle of gun silencing to engine explosions. In essence, it has remained

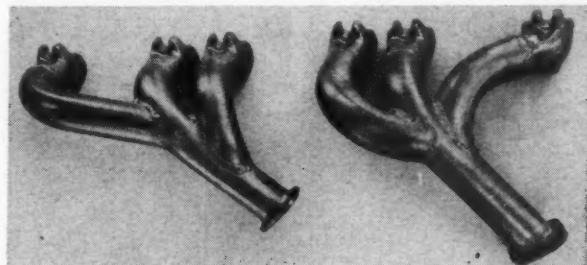


Most currently produced American cars use a muffler based on one of these two types: the straight-through (left) perforated pipe with small baffles which double as stiffeners, and the reverse-flow (right) in which the ends of the muffler shell act as baffles

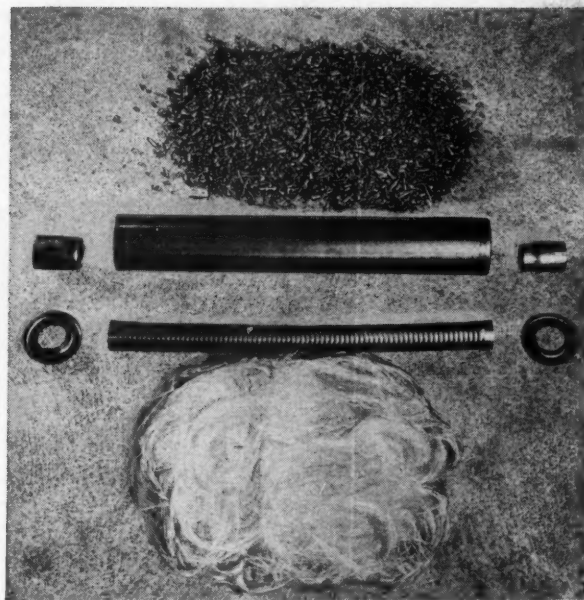
Photos by Eric Rickman



This header set, designed for one of the popular-make V-8s, replaces the less efficient stock system, with crossover pipe



Designed for a popular-make six-cylinder car, this header installation is quite similar to those on European sports cars



BILL SOUTHWORTH

Two packing materials are available in most of the accessory mufflers on the market, Fiberglas (below) and steel chips (top)

unchanged in the most efficient of today's mufflers. Maxim based his silencer upon the combined principles of expansion and diffusion of gases without the restrictive properties of plain baffles or the high noise level of the unaided expansion chamber. This solved the basic problem at hand. Almost every muffler built since that time has evolved from Maxim's theories.

In early engines, mechanical tolerances were not what they are today. Engine parts often made as much noise as their exhausts. This lack of precision machining also flung oil about, liberally coating the occupants of many a mechanical survey until they resembled a group of Nubian nomads. It also created a muffler problem. Particles of oil and other items were held in suspension in the exhaust gases until they came in contact with the muffler surfaces, where they formed a hard coating that built up into a mass restricting gas flow. Mufflers of the day were bolt-assembled and required fairly frequent cleaning for peak performance.

Experimentation did not stop at that time; it couldn't. Better and better engines required better and better mufflers. Straight (vertical) baffles were discontinued and the perforated tube came into its own. The first perforated tube mufflers consisted of a straight-through tube in the center of an expansion chamber. This was efficient though noisy, and later designs revived the partial-baffle system on each side of the center tube. Again the baffles became a problem. Corrosive gases and condensation of chemical residue within the muffler rusted the baffles loose until they vibrated with each explosion of the engine.

Once again picking up the perforated tube principle by itself, engineers brought forth the reverse-flow muffler. In this type, two or more perforated tubes are located within the muffler shell, with offset "in" and "out" openings. The muffler ends act as baffles or deflectors, routing the gases back and forth through the tubes and finally to the tailpipe outlet. Many current production cars use the reverse-flow type, either by itself or with an additional resonator-type unit in series.

The straight-through muffler with a perforated tube center and small baffles at right angles to the tube is also in current use.

The first commercially successful pack-type muffler was the pre-World War II Burgess. Its designer surrounded the per-

forated tube with a mica flake pack. Pre-war Studebakers used it. About the same time, backyard mechanics decided to see what could be done along the same lines but with steel wool as a diffusing filler. This met with immediate consumer success because of its mellow tone, but it was not too durable and so did not win approval of the conservative element.

Small repair shops took up pursuit of the problem by experimenting with lathe shavings, pebbles, and a thousand other packs until they arrived at the current long-lasting fillers (steel shavings are excellent). And interest in pack mufflers increased to the degree that they are now a multi-million-dollar business.

With the increased interest came increased problems. Borrowing some basic theories on exhaust systems in general and applying the more recently discovered results of extensive audio research, individual accessory muffler manufacturers began to build more than just a nice sound. They engineered mufflers for specific makes of cars. Two German engineers had discovered the desirability of using a "tuned" muffler and pipe arrangement a good many years before, but it was now being put to practical and efficient use.

As each engine produces a given exhaust frequency (in vibrational frequencies per second) the biggest problem for the muffler manufacturer is to fabricate a unit that dampens out these frequencies, yet remains efficient enough for the high horsepower of modern engines. If you purchase one of the many pack-type mufflers available, satisfy yourself that it is specifically designed for your car. Over the years, many a welder has found himself turning into a well-qualified audio engineer.

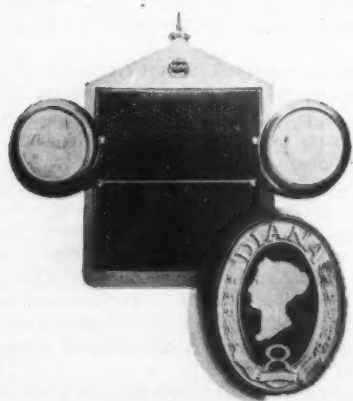
The straight-through, pack-type muffler has come of age and is one of the largest-selling automobile accessories in the United States. It offers a reasonable increase in performance as compared to its initial cost, its life expectancy is equal to any other current type, and it comes in assorted degrees of silence that satisfy most minions of the law.

One other development has come into popular usage through the efforts of the muffler manufacturers. After developing a muffler satisfactory both in silencing qualities and efficiency, they turned their attention to getting the most out of the entire exhaust system.

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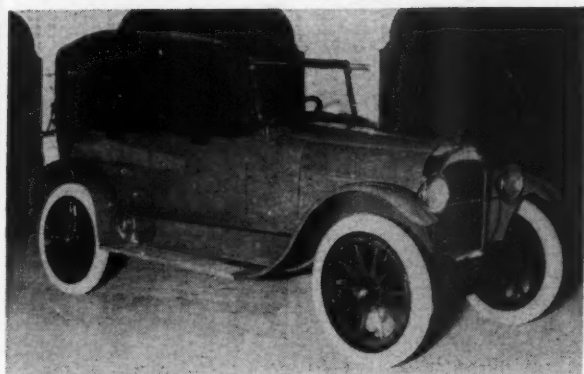


Two prominent figures of the Twenties, the late Babe Ruth and the solid but stylish 1927 Moon 6-60 cabriolet that he used during a Canadian vaudeville engagement

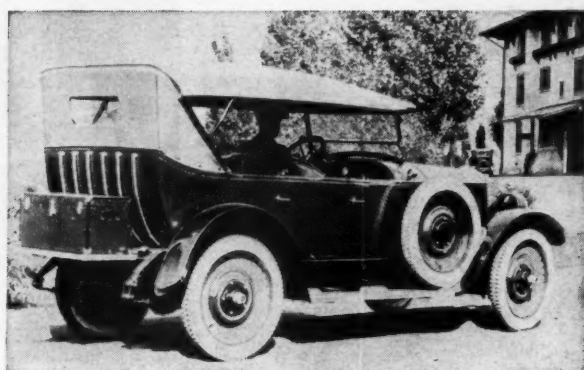


New Light on the Moon

Text and photos by Hank Wieand Bowman



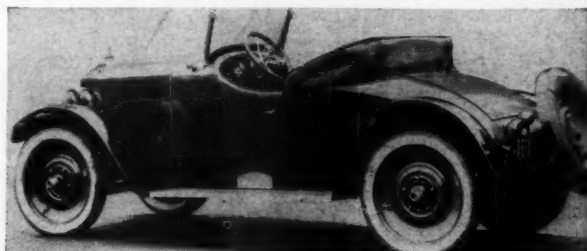
Sitting in the tonneau of this victoria touring was once just about as smart as you could get. Mechanically Moon followed the leaders; its novel bodies were something else entirely



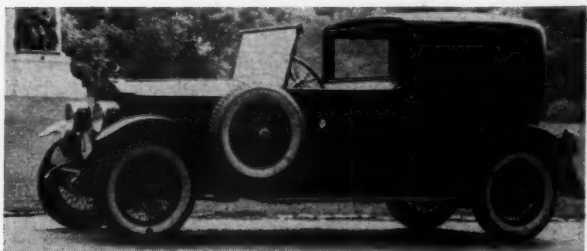
Disc wheels, "capacious trunk," and those German silver rub strips lent character to this 1922 Moon. Particularly sporty was the light-colored "Burbank" top in a day of somber black



The proud owner commanded his six cylinders and 53 eager horses from here. Huge letters on the floorboard kept passenger and driver aware of the fine car they were riding in



The successful young blade of 1923 whizzed about town in a Moon roadster, with pointed rear fenders, huge spare disc wheel and tire, and small swooping doors (now being revived)



This classic collector's item is one of the few Moon "pneumonia specials." Ruboy designed the custom body. Slanting windshield and curved rear lines belie its birthdate (1924)

Once a solid part of American life, this car's future was bright one year, on the wane the next

FROM 1905 until 1930 the Moon Motor Car Company of St. Louis, Mo., turned out far-better-than-average cars. In fact, Moon Brothers Carriage Company, predecessors of the auto company and makers of horse-drawn carriages long before the day of the gas automobile, had established a reputation for reliability and quality finish. Joseph W. Moon, the carriage company's head and later president of the motor car business, took great pride in quality rather than quantity production. It's true that a popular love song, "Get Out and Get Under the Moon," enjoyed great popularity among Moon's competitors, but the car was sturdy.

From 1905 until the demise of the firm in 1931, Moon developed few automotive firsts. But Moon was quick to grab at

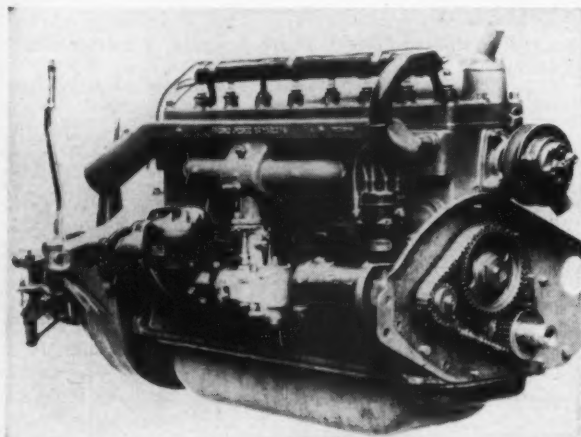
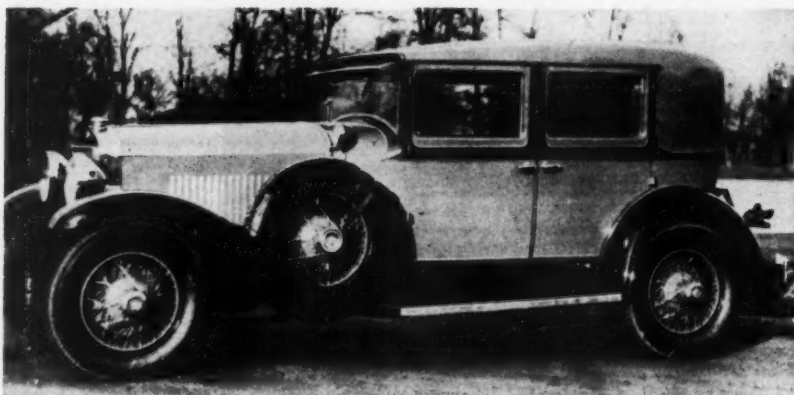
good features and incorporate them into its own cars. Disc wheels were introduced in 1919, and Moon had disc wheels on its next models. When pressure lubrication of the Alemite type replaced the thumb-screwed grease cups in 1920, Moon quickly adopted it. Duesenberg offered the automotive public four-wheel hydraulic brakes in 1921; Moon had them by 1922.

Let the record be clear that the Moon was invariably a good dollar-value car. Some of its finer models, like the Aerotype 8-80s of 1929 and 1930 that followed the French and Spanish school of body design, are classic items today. But Moon, even in its heyday of 1925, was small fry in the overall sales picture. By that date 565 American companies had already made their exit from the automobiling scene. Some extremely substantial

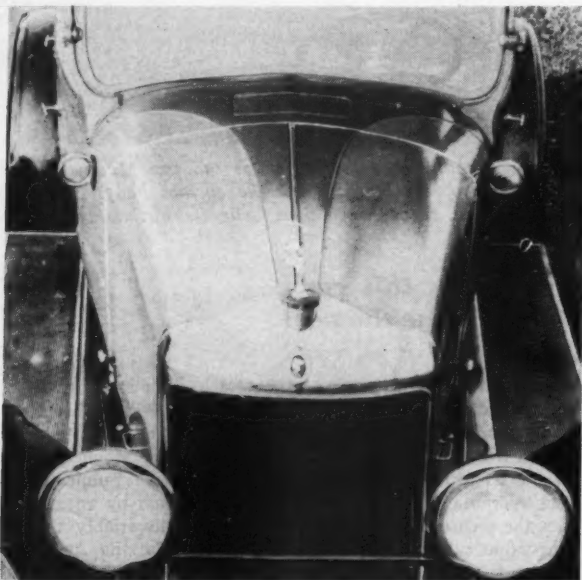
New Light on the Moon

continued

In a final desperate effort to fend off disaster, the 1929 Aerotype Moon appeared. Its Oilometer system fed one drop of oil to all chassis points every four minutes



Since Diana was the goddess of the moon, the first Moon offshoot came naturally by its name. An eight in an era of fours and sixes, it had a Morse silent chain camshaft drive



Diana herself, looking a little more limber than on the august Pierce-Arrow, topped the distinctive radiator. Wavy light rims and two-tone paint graced the Arrowhead phaeton

products had passed away, such as Saxon, which in 1914 was tenth in overall sales, moved up to eighth position in 1916, started to slip in 1917, and skidded into oblivion by 1922.

After Joseph Moon's death in 1919, Stewart McDonald took over the reins. Under his direction, Moon reached its peak production of 12,924 units in 1925. In 1927, the year before Carl W. Burst succeeded Stewart McDonald in the presidency, Moon and Diana (a Moon product) ranked 32nd in total sales in the industry. That year the company's overall unit sale of 5256 (Moon and Diana combined) reflected a very noticeable downhill trend, for in 1927 the automotive industry as a whole marketed a whopping big 2,813,476 units.

In 1928, which by hindsight was to be a critical year and the beginning of the "New Era" influence on Moon, the only other automobile producer in St. Louis was the Gardner Motor Company. Moon was finding competition tough. The Diana, an eight-cylinder, Continental-powered, 72-horsepower job, had been launched to give the company a shot in the arm. During Diana's first year (1924) sales had been good; more than 5000 cars were pushed onto the dealers. But buyer resistance and reflected dealer resistance gave the finely built Dianias a short life. Moon built "The Goddess" only through 1926 and sold the last one in 1927.

Moon stock, of which 100,000 shares were on the market, was down to \$6.

Gardner, launched in 1919, was never large in sales. Like Moon, it was long on quality. In the \$1500-\$3000 price bracket, it produced a car of good upper middle-class rating. Well-proved Lycoming engines powered its assembly-type cars. Also like Moon, it was independent of any ties with other manufacturers. With its subsidiary, Parks Aircraft Company, it seemed in a sound if not sensationally healthy financial state.

What suddenly happened to cause these stable, long-established businesses to fold is largely the story of the "New Era."



F. H. Rengers, Moon's sales manager, beside a 1926 Diana deluxe sedan. The influence of the famed, expensive Belgian Minerva is evident in the curved Diana (and Moon) radiator



Why confine yourself to just one or two colors? Most familiar Ruxton of them all was this "saloon," whose body shaded from light grey to deep maroon. Hood latches, big lights were new

In mid-May of 1928, pedestrians walking through the advertising section of New York City noted a low, underslung car parked in the East Forties. Its radiator carried a large question mark instead of a nameplate.

When queried about the Ruxton—for the car bearing the question mark was the original model of the front-wheel-drive car that was to bear that name—publicity man Harry Bruno stated that it was a shame the car never really got into production because it was a fine automobile. He said further that it was a shame it didn't have the financing necessary to put it over.

There is no dispute with the first part of Bruno's statement. But behind the second there is a weird sequence of events that was not only to lead to the downfall of Ruxton but to drag Moon, Windsor (another Moon product), Gardner, and Kissel down with it.

On that morning in May 1928, automotive writers of leading dailies, business writers for financial publications, and at least one weekly news magazine received a press release from a new name in the business field. New Era Motors, Inc., purportedly manufacturers of the Ruxton. "It is expected," it said, "that 500 of the five-passenger sedans will be ready for delivery by July 1st."

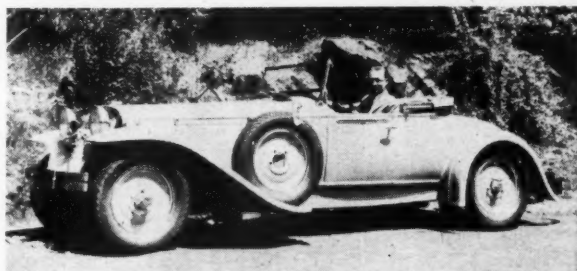
But New Era Motors had but one pilot model, no factory, and no sales organization. Was New Era an earlier example of the on-again, off-again fanfare that heralded new cars after World War II? Or did New Era make a genuine try to put on the market a finely engineered automobile and enter a highly competitive business with the bona fide intent to protect, and make profit for, its stockholders? Here are the basic facts:

In its first announcement to the press, New Era described "America's first front-wheel-drive automobile known as the Ruxton . . ."

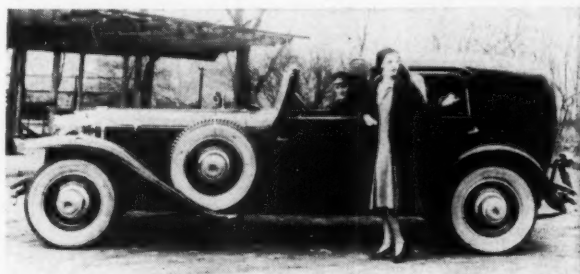
This was hardly true. The Christie was a well publicized front-drive effort of 1904. Selden's original gasoline automobile had front drive. And in 1918 another company, Camden Motors, demonstrated its Frontmobile and displayed it at the Manufacturers' National Auto Show at Grand Central Palace.

Camden made no rash claims of presenting "America's first" front-drive car. Instead, it had said ". . . The front-drive principle has been regarded as feasible and desirable for many years. Some of the first motor cars built were operated with a front-drive mechanism but, owing to the necessity of steering by the front wheels, many obstacles were encountered which prevented the general adaptation of the principle to either passenger or light commercial cars. The effectiveness of the front-drive is clearly demonstrated by its use in the operation of the heaviest and most powerful trucks in the country, such as are used by the fire departments of New York, Philadelphia, Chicago, and other cities. Advantages include

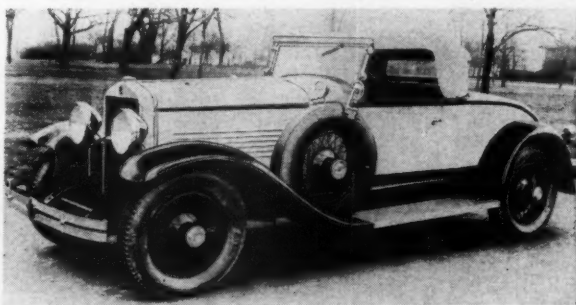
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Famous figures like Ralph Snoddy, hydroplane driver, showed interest in the Ruxton roadster. Difference in height between front and rear bumpers was only slightly above average

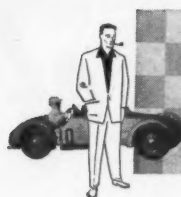


In the early Thirties most town cars were tall, sedate, and best suited to dowagers. Not so the Ruxton, greeted enthusiastically by movie star Claire Windsor at New York's Casino



Briefest companion-car adventure at Moon was the Windsor White Prince. Perhaps to further the British influence, it had a four-speed transmission. It never became a popular car



**AUTO****SPORTSMEN**

The MILK BUG BITE

Auto careers have strange beginnings. Bob Estes started his with what was to have been milk money

By Ivan T. Galanoy

WHEN BOB ESTES' three-year-old son, Dale, formally dumped a full quart of homogenized milk on the gleaming hood of his father's new sprint car early this year, the casual observer might have tagged it a sentimental family christening and father-son gesture.

But nothing could have been more appropriate.

For Estes, who has driven or sponsored AAA midgets, stock cars, Big Cars, and sprint cars, in hot rodding, outlaw racing, hillclimbs, the Mobilgas Economy Run, the Championship Trail and the Pan-American Road Race, plus Bonneville Salt Flats and Indianapolis (to name a few he can recall offhand), actually got his start by filching his school "milk money" every day, saving enough to buy an abandoned Model T when he was seven years old.

To complicate matters, young Estes drove a hard bargain for the T and wound up paying a grand total of \$3.52 for the "bug," wooden license plates and all. Young Estes simply recalled his father's driving instructions, clambered behind the wheel of the T and chugged happily homeward like any normal seven-year-old with his own car. Estes doesn't remember how he managed to talk himself out of trouble with the two cops who stopped him. He does recall the stunned expression on his engineer father's face when the T came snorting into the family driveway.

The State of California wagged a forefinger and indicated to Estes senior that his son was not to be allowed on the highway again for some time, whether he was legal owner of an automobile or not. A bit disgruntled, Estes, the younger, set to work with screwdriver and wrench to disassemble the car and, in so doing, to start the assembly of an automotive career which has grown steadily upwards. It gives no current indication of changing direction or slackening pace.

Today, nearing 40, Bob Estes is considered one of the nation's top auto sportsmen. He is a successful Lincoln-Mercury dealer and one of the leading competition car sponsors in the field. Between that first Model T and his Lincoln entry in the 1953 Pan-American Road Race lies a fast-paced, record-packed three decades of automobile enthusiasm, unmarred by outside interest.

At 12, Bob Estes decided to become an automotive designer. At 16, he ran a Model T roadster with an SR Frontenac rocker arm conversion at Muroc Dry Lake, and the next year (1930) he turned 111 mph on that site for a new record. Two years later he yanked the engine out of his roadster, put it into a race car and ran the oval circuit throughout Southern California. The attempt was valiant but financially unrewarding; race attendance was down, promoters were discouraged, and Estes sadly replaced the engine in the roadster.

In rapid sequence Estes entered the engineering college at UCLA, quit when his father died, went into the gas station business, saved \$2000 and walked away from the gas pump islands. He climbed aboard a European-bound boat to see what foreign cars were all about. After touring the Continent and South America, he returned to Southern California in 1938 and went

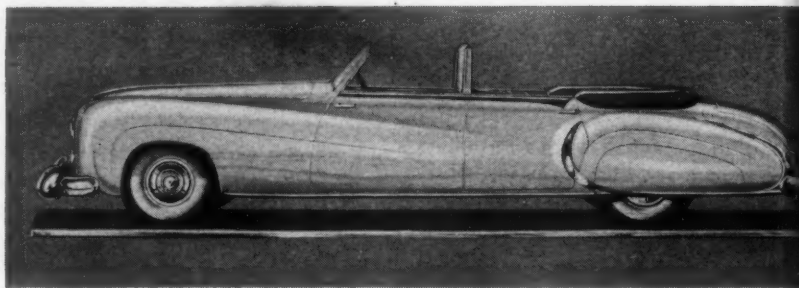
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Strictly One of a Kind

His imagination still working overtime at 73, Jacques Saoutchik builds custom bodies unsurpassed for fantasy

Text and Photos by Ernest E. Reshovsky



The Saoutchiks, father (right) and son, in the Paris office. There they turn out such inimitable cars as this Cadillac for the Prince of Saudi Arabia. It is emerald green with cream accents. Doors are 20 inches thick. Bodyguards ride retractable steps

NEED THREE CARS. ONE FOR OPERA, ONE FOR TOURING, ONE FOR WIFE. DO YOUR BEST. SEND BILL" was all the telegram said, except for the signature—"KING OF SIAM." Five months later the ruler's garage housed a Rolls-Royce (opera purposes), a Mercedes-Benz for touring, and—for the royal ruler's wife to whiz around in—a Hispano Suiza town coupe, all custom built, of course. The king's book-keeper was also the recipient of a bill for the equivalent of \$60,000 from Saoutchik of Paris—*Carrossier par Excellence*.

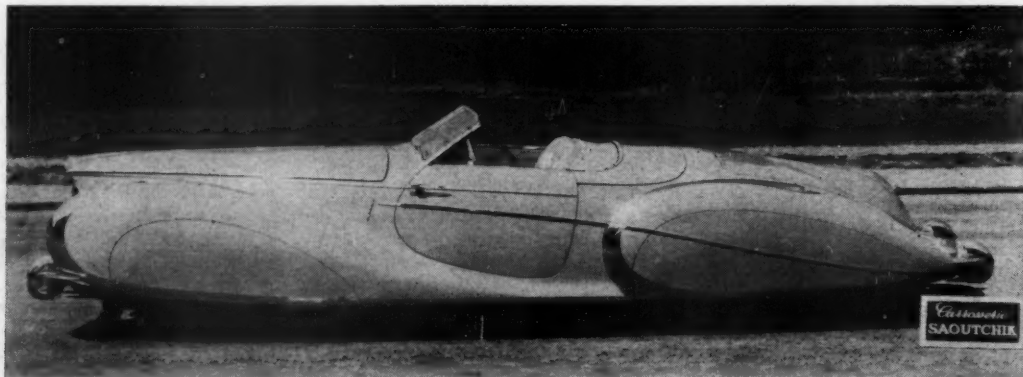
For 47 years—since 1906—the name of Saoutchik has been synonymous with top-notch custom body work in automobiles—as well as the utmost in elegance

and individuality which four wheels can carry and money can buy. Innumerable titled heads, millionaires, and movie stars continually beseech Saoutchik to "design something special for me."

A visit to Saoutchik's establishment, located on a small Paris side street, is like taking a spin in a rare vintage auto and then suddenly finding yourself whizzing away in one of the sleekest cars the future has to offer. Founder of the firm Jacques Saoutchik (now 73 years old) loves to ramble in the past, describing the high points in the history of the establishment, his fabulous customers and crazes of 20 years ago; his 38-year-old son Pierre (who has now taken over the running of the shop and all the designing responsibilities)

saves his enthusiasm for discussion of designs of tomorrow.

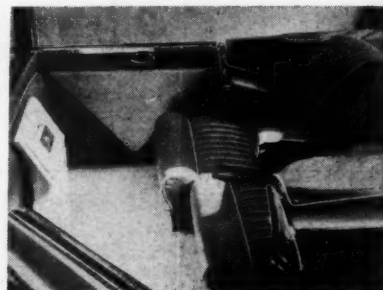
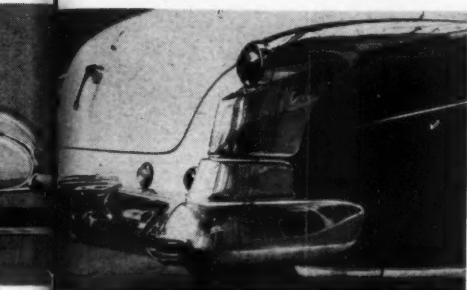
Why has the name of Saoutchik been outstanding in custom design ever since the early days? Most important in the automotive world is this fact: A stock model becomes dated, but Saoutchik creations have a quality of incredible timelessness—an important reason for any great designer's success. When I interviewed the father and son, in their shop stood a 14-year-old Saoutchik Talbot (in for servicing) next to a new Pegaso they're completing. The Talbot looked as sleek and elegant in line as the day it was created (and still attracts admiring glances from onlookers) while the new Pegaso resembled a prediction of the 1965 car.



Lord Gaul of England is the owner of this flamboyant Saoutchik convertible built on a 1947 Delahaye chassis



Another individual body, this time on a Talbot, with Saoutchik's favorite broad expanses of flawless mirror chrome



The Saoutchik establishment is not afraid to use chrome. Crest of crossed palms and swords appears throughout royal car. Interior is pale green leather and ivory fur, has a birchwood bar with two gold-plated thermos bottles, six sterling silver drinking cups

The Saoutchiks also have a special knack for producing a truly individual car to fit each customer's needs and tastes, employing clever touches that make a client feel "this is my car and mine alone." They also possess patience, pride, and the desire to please. "If the customer is not content with our first suggestion," says Pierre Saoutchik, "we will design three more—or 30 if necessary—until he is absolutely satisfied." Said the elder: "We would rather have a happy customer and lose money than the other way around."

Due to the importance of their customers, safety has always been an important aspect of Saoutchik bodies. A Saoutchik body is guaranteed to last as long as the chassis for which it is designed, and when

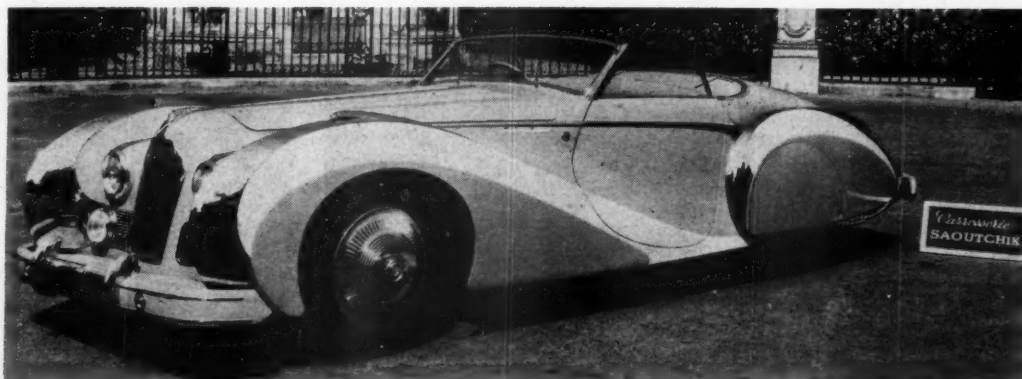
one of their automobiles is delivered, along goes extra paint (since all their paint jobs are special) and additional yardage of leather or skins used in upholstery, as well as duplicate doorhandles, instrument panel knobs, etc.

The elder and younger Saoutchik have a great respect for each other, and agree on many points: Both prefer lower and longer lines than those in most stock automobiles. Both like the new Studebaker design and think it's tops as far as a production line car is concerned. Both prefer above all to design for a Cadillac chassis. There is not too much difference between the price of a medium-price chassis and a Cadillac, they point out, while the cost of the body work remains fundamentally the

same. Pierre also says that for his money Cadillac chassis are comparable to the best that Europe has to offer in the large category and can be serviced anywhere in the world.

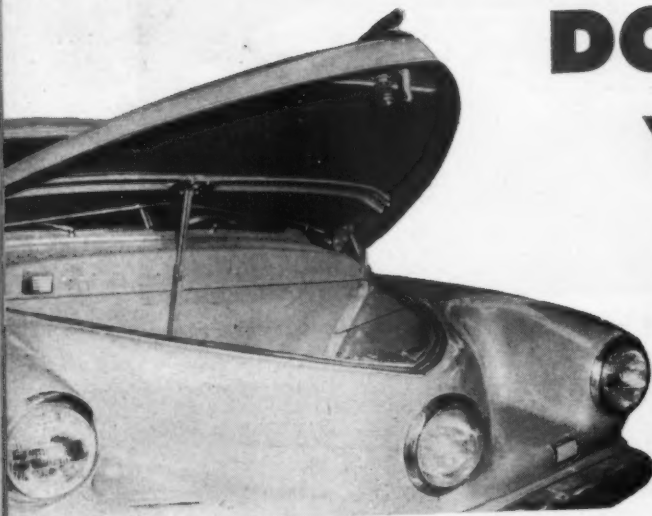
There is, however, one important point where they differ—Saoutchik Senior has always had a weakness for convertibles, while his son prefers hardtop convertibles. Actually the firm has long specialized in what they call "comfortable convertibles," which can be driven in competition but are not special track racing jobs. They take great pleasure in turning out an all-around elegant auto, which looks equally outstanding at the opera or the beach. (Not all their customers can afford a

(Continued on page 60)



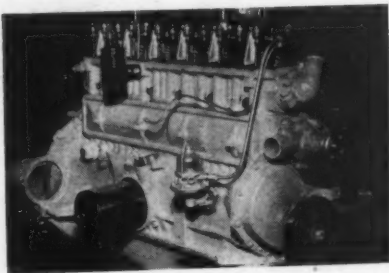
Favorite chassis of the Paris firm is Cadillac, though (as here) very little identity may remain. Note canework

DO YOU KNOW YOUR CARS?



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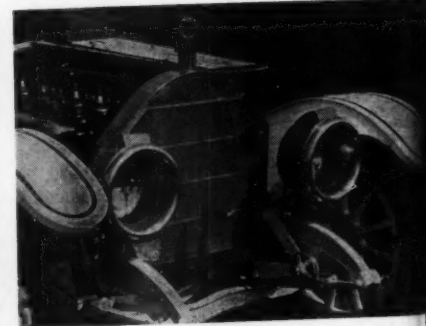
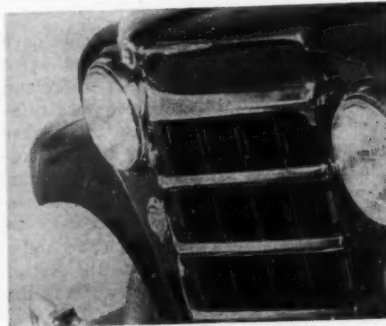
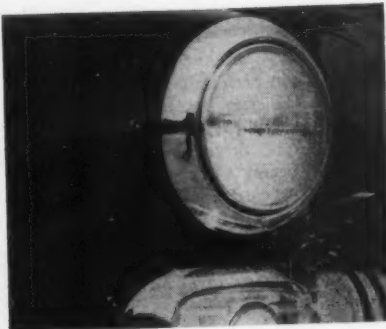
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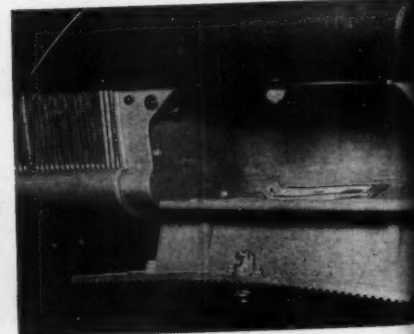
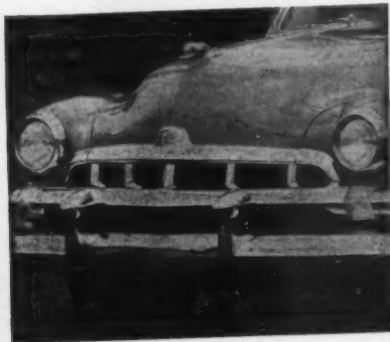
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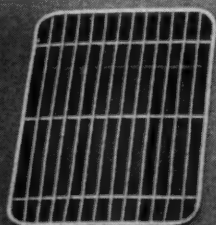
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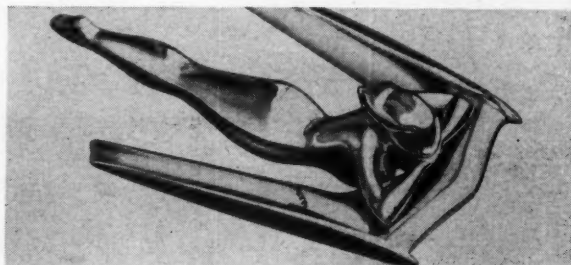
HERE IT IS—MOTOR TREND's fun-filled, prize-filled "Do You Know Your Cars?" contest! It's open to anyone (except employees of Trend, Inc., or members of employees' families), so if you want to find out just how well you know your cars, just fill out the form below with your name and address, and your

answers to the corresponding numbered pictures. (Print clearly; fill in only the make of car to which the picture applies. It is not necessary to give the year or model.) Prizes are: first prize, \$100 U.S. Savings Bond; second, \$50 bond; third, \$25 bond. In addition, 25 two-year subscriptions, and 50 one-year subscriptions

to MOTOR TREND will be awarded runners-up in the contest. There is no entry fee for any of the three quizzes required for completion of the contest. Series Number One must be postmarked not later than January 1, 1954. Mail entries to: Contest Editor, MOTOR TREND, 5959 Hollywood Blvd., Los Angeles 28, Calif.



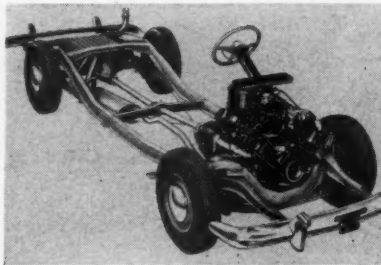
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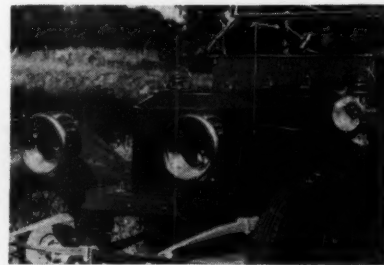
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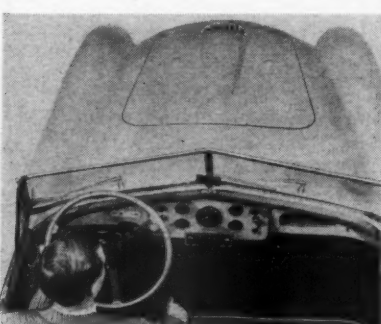
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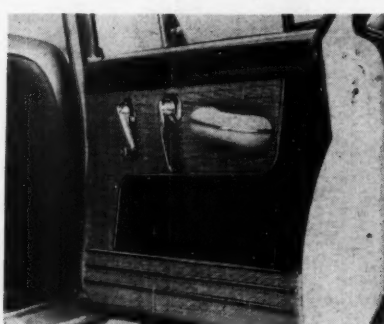
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"Do You Know Your Cars?" Contest

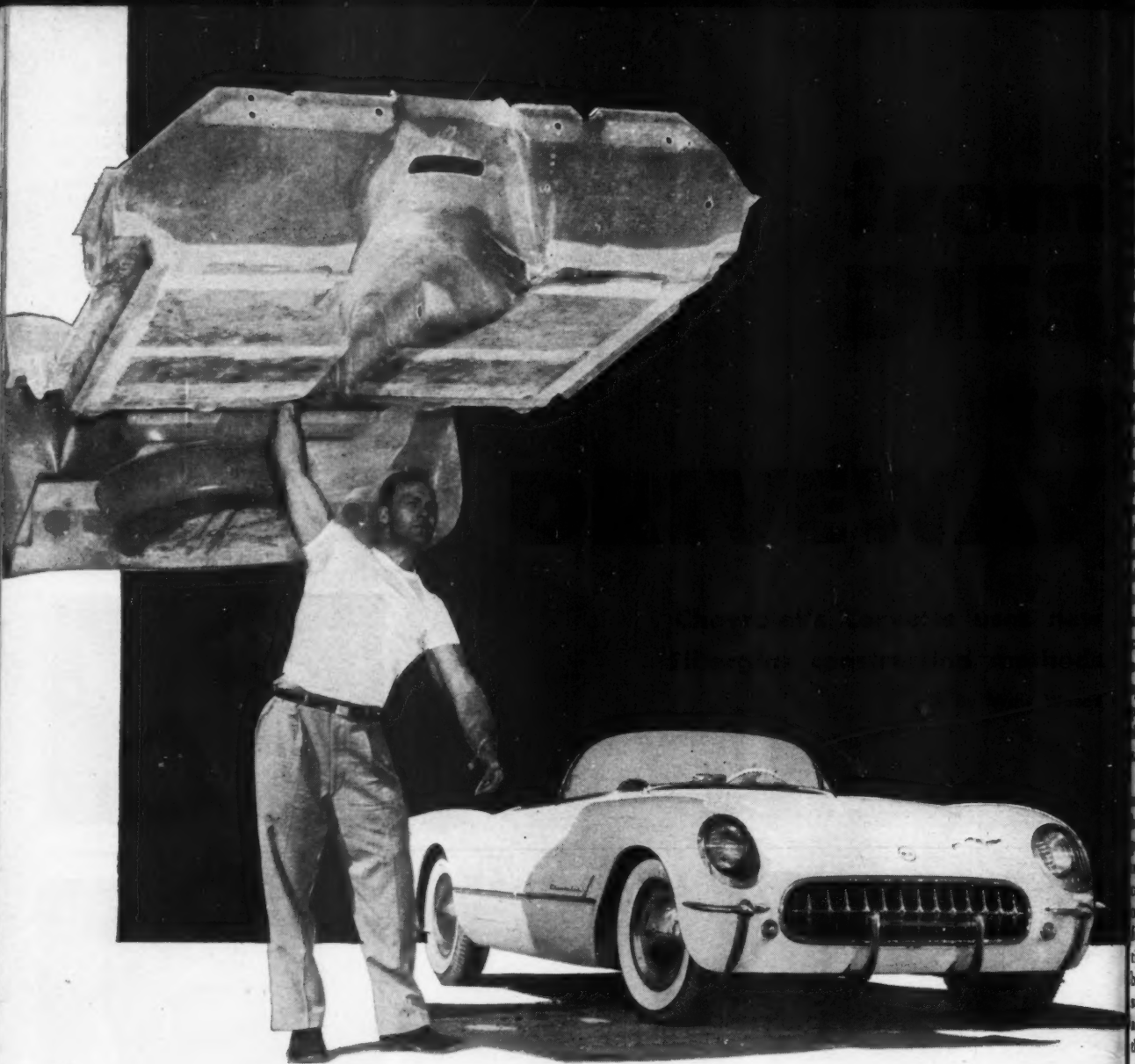
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Last month, Walt Woron gave you his driving impressions of the Chevrolet Corvette. Now, to bring you right up to date on the story of the first Fiberglass car to be mass-produced anywhere, Walt went right to the assembly line to answer the question—"How is it made?"

TO UNDERSTAND the overall picture of the Corvette in construction, let's first review the groundwork that went into the car's conception. Fabricating a plastic-bodied automobile requires more time, more men, and more floor space than that needed for a steel body. On the other hand, the Fiberglass body offered these advantages: less weight, with resulting ease in handling;

elimination of heavy stamping presses; and quick molding of parts, affording short cuts in design processes.

A final analysis of Fiberglass, as opposed to steel, brought out a tooling cost favoring Fiberglass four to one. Fiberglass holds this edge largely because it can be molded into intricate shapes not possible with steel.

Before Chevrolet scheduled the Corvette for production, engineers made an experiment not only to determine possible production methods, but to test the physical characteristics of a Fiberglass body. The original plastic body was molded from a 1952 Chevrolet convertible. Reinforced plastic panels were built over the convertible's body sections; this

shell, when removed from the steel body, served as a female mold for the finished body to follow. Later, mounted on a stock Chevrolet chassis, this plastic body withstood many severe tests, including a roll-over.

Now in full production (with an expected 1954 output of 1000 units a month) the Corvette's breeding ground is nearly as active as the car-a-minute metal-body assembly lines. Located at Chevrolet's car and truck plant near Flint, the Corvette line is set up with body assembly in the center of the building, flanked by the chassis line on one side and paint booths on the other. In the body assembly area are the jigs in which body parts are joined.

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Chevrolet uses the laminated—or "sandwich"—method to produce plastic bodies in 61 separate molds. The chief materials are glass fiber mats and polyester resins. When the liquid resin impregnates the glass fiber mats, it cures and it binds, and supports the filaments of glass to create a solid panel. (For a complete description of Fiberglass processing, see "How to Work With Fiberglass," August MOTOR TREND.)

In plastic fabrication, a mold substitutes for the steel die which fits into a metal-forming press. Chevrolet utilizes the so-called "bag method," where the curing process, under pressure, is accelerated by heat. When the mold is prepared with a parting agent (to permit ready separation of the cured panel from the mold) the first layers of Fiberglass are "laid-up" and coated with resin. A sheet of polyvinyl plastic is clamped over the mold, and the air between the mold and the sheet is removed; this causes a vacuum, and pressure is equal at all points. An application of heat speeds the curing process. When the part has been cured, it is removed from the mold and trimmed and ground to size on a band saw or sanding wheel.

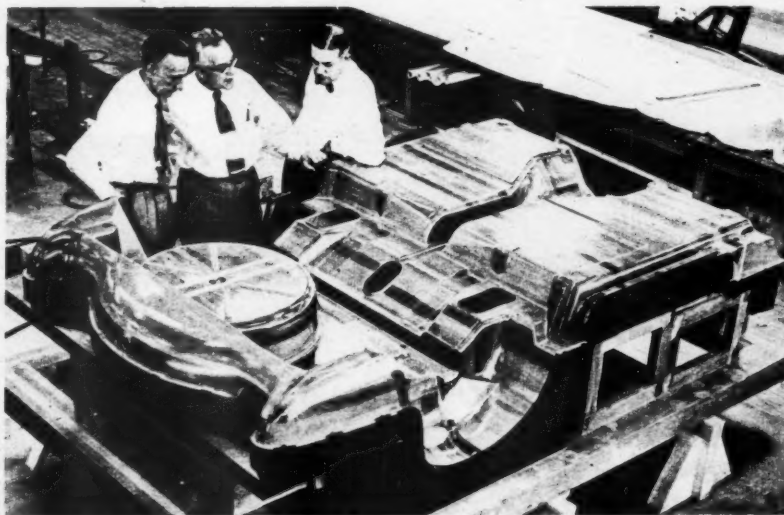
This process is not too unlike that used by others working with Fiberglass, but Chevrolet engineers, with a high production goal in mind, have speeded up nearly every phase of the Corvette's construction. The Corvette, unlike many other plastic automobiles, has for its foundation a one-piece, reinforced plastic underbody that extends from the rear bumper through the dash panel. Its subassembled upper and front sections are bonded and riveted along a flange that later supports decorative moldings.

For maximum chassis strength, the car's driveshaft passes over, rather than through, the center of the X bracing the frame. The 51-inch rear springs are mounted outside the frame for stability. From bumper to bumper, the Corvette was designed for maneuverability, but its engineers nevertheless wisely demanded roominess not customarily found in a car of this type and size. For a car that is a true pioneer in its class (mass-production in Fiberglass by a major manufacturer) the Corvette is remarkably complete when it rolls from its six-chassis-long assembly line.

Still Chevrolet men aren't sitting back admiring their product, satisfied that they have their "baby" rolling smoothly off the line. E. H. Kelley, General Manufacturing Manager of Chevrolet, sums it up this way: "When we discuss produc-

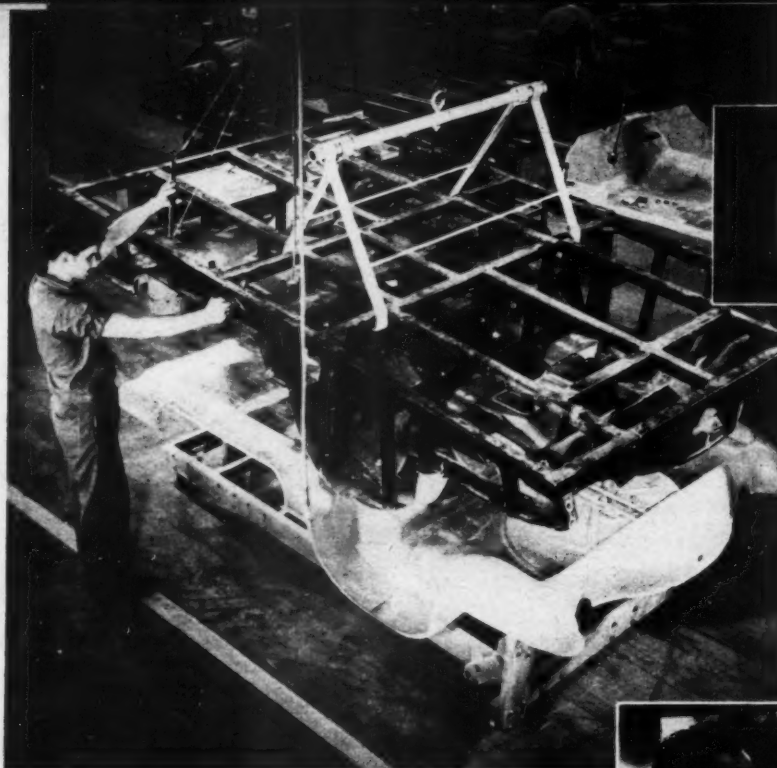


Major Corvette components are (reading clockwise from "checker" at lower left): instrument panel, bulkhead and seatback, rear fender top panel, underbody, front end



One of the first steps in Corvette production was the construction of die molds for plastic body sections. Shown here is the mahogany die model for the underbody

CONTINUED



A drill jig, placed over the Corvette underbody section, serves as a guide for locating the holes needed when body is riveted



The underbody, fitted with instrument panel and lower part of seatback, now receives the top-front Fibreglas body panel

Wired, and fitted with instruments and some of its trim, the Corvette body is lowered onto its chassis at the Flint plant

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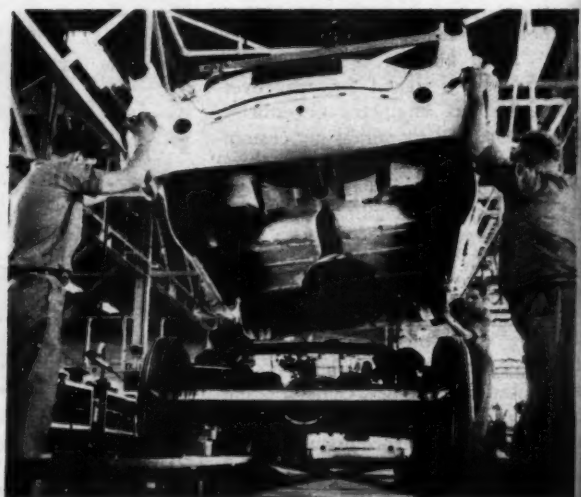
tion of the Corvette body, we are speaking only as of today. Progress in manufacturing has been so swift that what is true now may be outdated tomorrow."

That could well be an echo from the past, referring to all the infant industries of America; but for now, it applies particularly to Fibreglas construction.

Few people doubt that Fibreglas has a future in the automotive industry, but whether or not it can compete on the same plane with steel is another matter. Although Chevrolet says that as far as



Typical of intricate shaping possible with Fibreglas, finned taillight housing is molded to fit the fender like a glove



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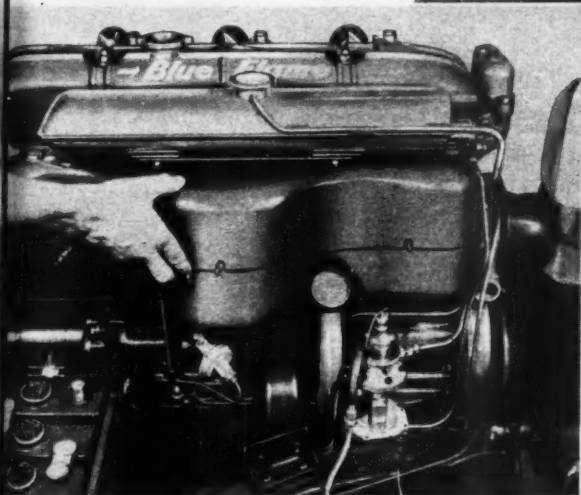
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Fiberglas is concerned, they have "cast the dies," they also say cautiously that when a yearly productive capacity of 15,000 cars is reached, it's cheaper to produce bodies made of steel. Make of this what you will.

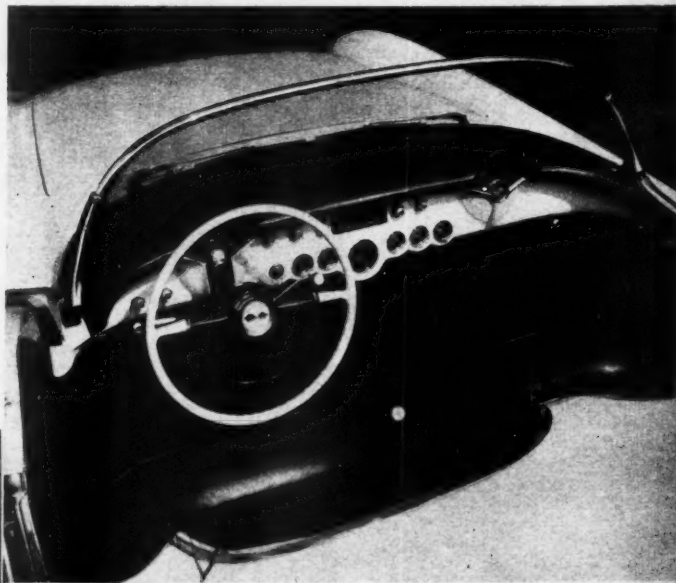
Whatever happens to the body, be it made of Fiberglas or steel, Chevrolet should be paid a tribute (as aptly put by C. A. Davison, Detroit sports-car enthusiast, at a recent S.A.E. meeting) "for taking time out from the work of putting out cars to play around a little."



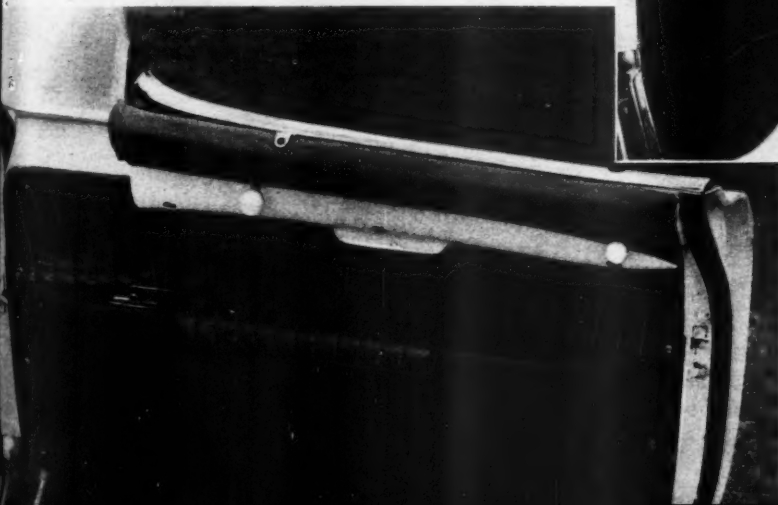
Chevrolet's Corvette has a spacious trunk for its size — a rare feature in a sports car. Spare is stowed under trunk floor



Because a Fiberglas body will not shield the radio from interference, a housing is built around the entire ignition system



The Corvette's red-trimmed cockpit is in striking contrast to its white body. Instruments include a tachometer with cumulative rev counter like an odometer



The attractive interior sports handy parcel lockers in the doors. The white knob at the forward edge of door molding opens door; the other locks window

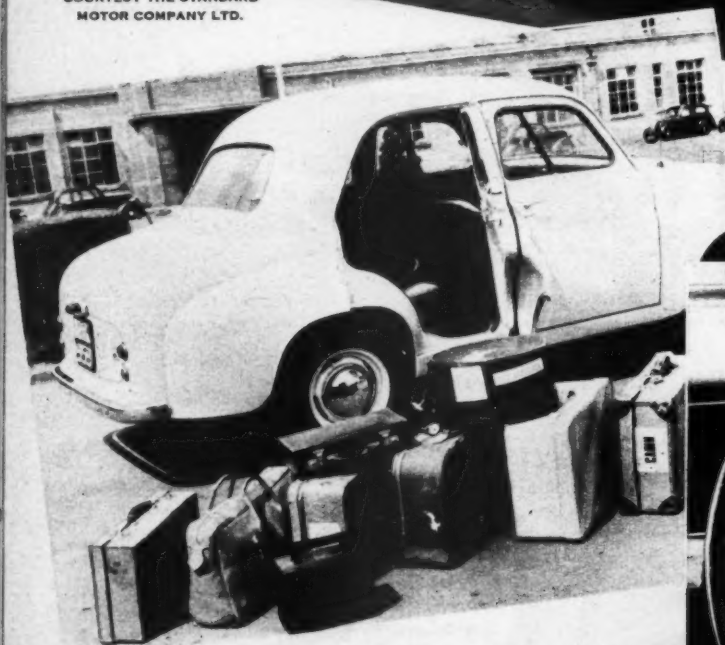
e u r o p e a n



COURTESY THE STANDARD
MOTOR COMPANY LTD.



A true descendant of early British baby cars, four-cylinder Standard is known as an eight by an old-hat rating. Actually it has 26 bhp



Little 1560-pound Standard claims to carry all these bags with four people, even more with rear seats folded. Sliding windows, trunk access from doors only, missing hub-caps (on regular model) keep cost down



The driver of Britain's latest austerity model sits here, aided by a tiny ohv engine, hydraulic clutch and brakes, and four-speed floor shift in piloting his Standard. It will give him 62 mph, or average 37½ miles per U.S. gallon

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Here are the first new Ford and Standard "eights" since the war — and that doesn't mean eight cylinders, either

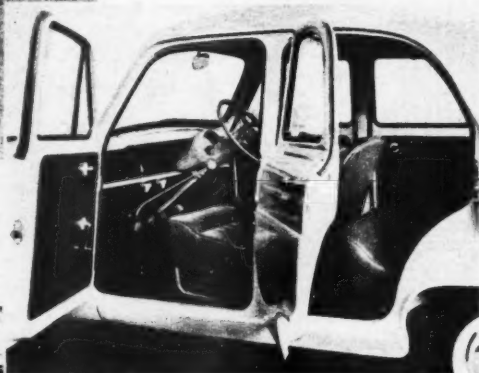


COURTESY THE FORD
MOTOR COMPANY (ENGLAND)

Destined to be a great favorite at home (and perhaps also here in the U. S.), new Anglia far surpasses its adolescent-looking predecessor in trim appearance, performance, and roadability

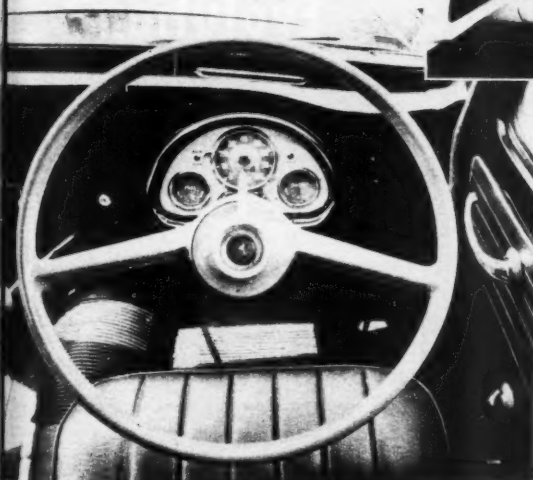


Ford's latest Prefect, completely redesigned, puts out 36 bhp from its L-head powerplant. It has an 87-inch wheelbase

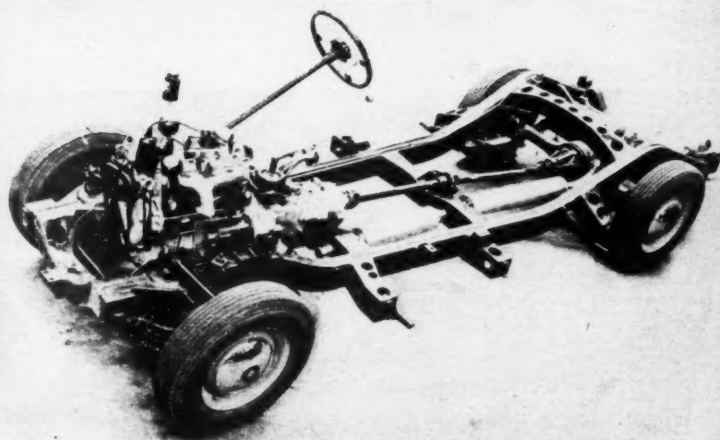


Interior of Prefect, while not fancy, shows no signs of skimping. The seats even have foam rubber padding. Gearbox has three speeds

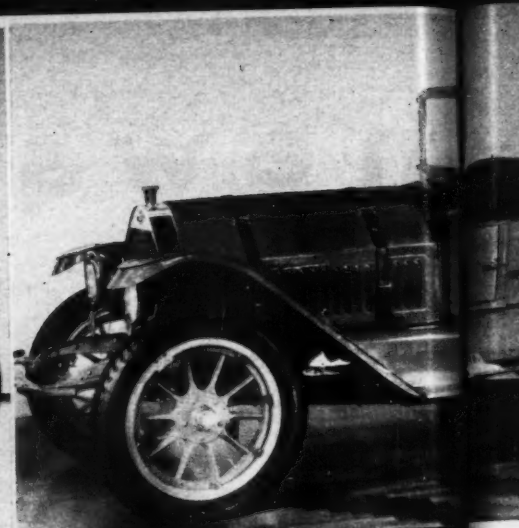
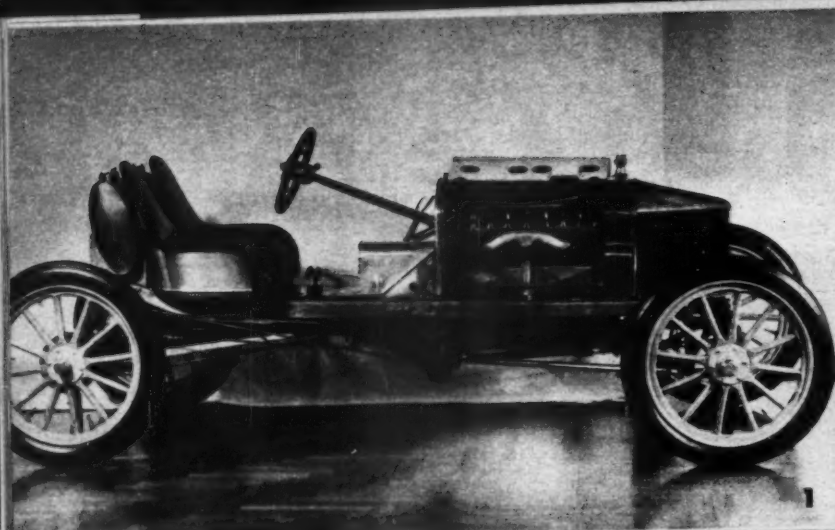
For 1954, the "poor man's Rolls" (that is, the Rover) has a new F-head, 60-bhp "four." The Rover sixes, too, have new floor shift



Interior of Anglia (similar to Prefect but without horn ring, etc.) is better finished than the Standard. Anglia now weighs 1615 pounds, and this year has the Prefect chassis



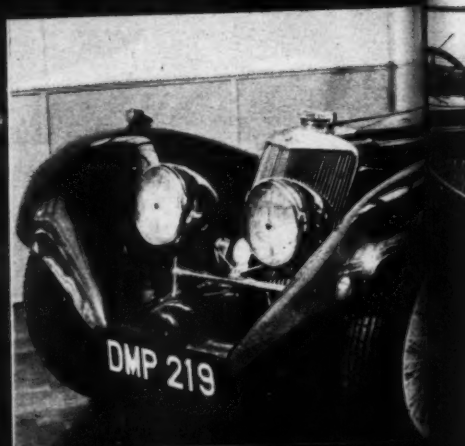
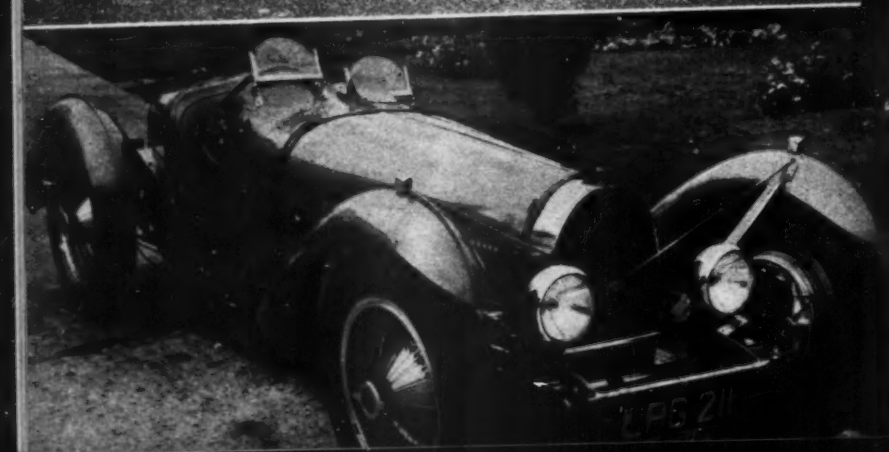
COURTESY THE
ROVER COMPANY LTD.



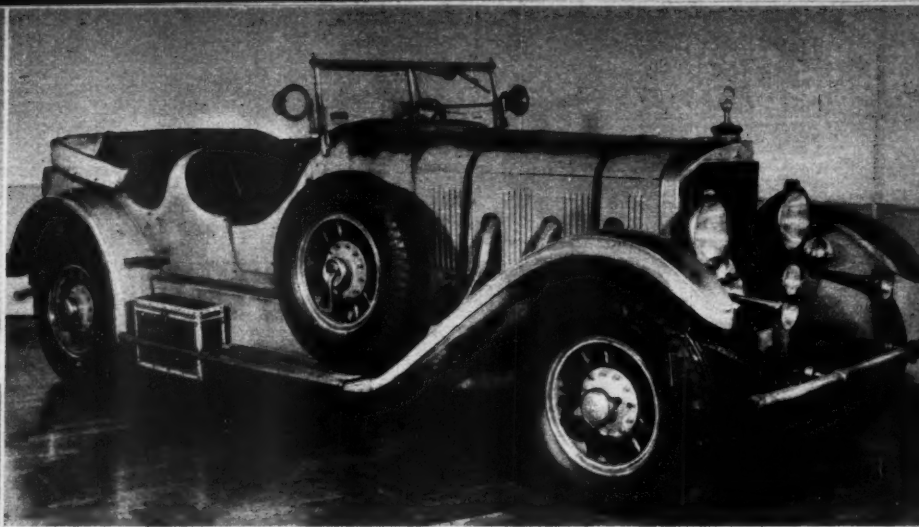
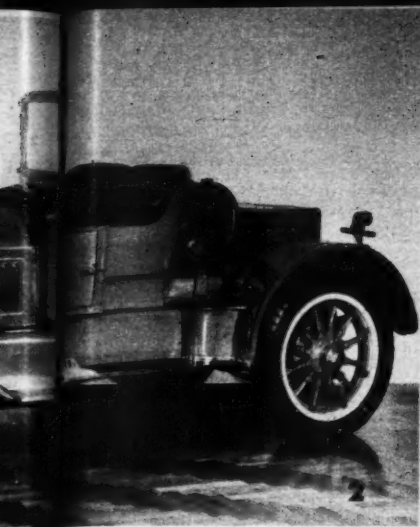
SPORTS CARS

Revolution
or
Evolution?

By Pete Molson



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SO MUCH GENERAL BAFFLEMENT has resulted from the revival of the term "sports car" that MOTOR TREND feels it should try to define it. The term, once before common in this country and never out of favor in Europe except, possibly, during World War II, has been as frequently misused as any other in the English language. To start, let us be sure we all agree that, no matter what fine products of Detroit, Coventry, or elsewhere may come so equipped, "wire wheels do not a sports car make."

Thus at rest with what may appear to be a serious question, we can proceed to further definition. Time was when anyone in charge of any motorized vehicle whatsoever might expect to hear the cry (derisive, more often than not) of "Hey, Spor-r-rt!" Indeed, to apply a modern term to them, so "squirrely" were most early cars that, though they might peak at 18 mph—and earn their owners, like the author's own stepfather, a speeding ticket for the deed—anyone who could conduct them with any semblance of accuracy might with justification call himself a sportsman.

Early racing, even of the road variety, was of course for the wanton, the totally depraved, or the dedicated. In the last category came such colorful figures of recent history as Barney Oldfield and Ralph de Palma. The cars they drove to their most famous victories were hard, big, and like their drivers, single-minded.

But back in the days of the storied Mercer, Bearcat, and Thomas Flyer (above), there arose in the hearts of men and some pioneer-type women a great and consuming desire for what, to them, was the universal car (Henry Ford meant something entirely different by his interpretation of the

1 Built for serious racing rather than as a sports car, 1910 Ford "Kulick" had many stock Model T parts including familiar radiator cap and usual planetary transmission. Car topped 103 mph, was of course never used for "just riding."

2 This behemoth's long hood was no deceiver. Under it, the 1915 Thomas Flyer boasted the largest U. S. stock engine (784 cubic inches). The six cylinders, boosted by a triple ignition system and "square" bore and stroke (5½ inches) managed to squeeze out the startling total of over 72 horsepower.

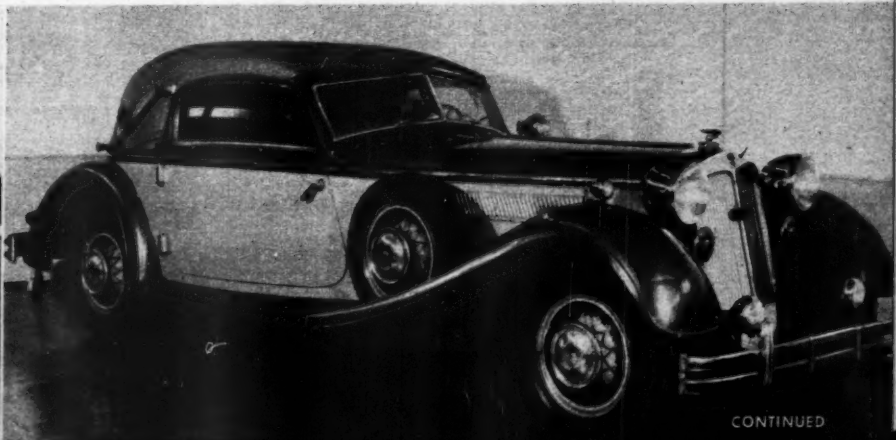
3 Zero to 60 in 20 seconds (remarkable for 1927) was one of proud boasts of pre-Hitler Mercedes-Benz 33-180K. Its makers called it the "fastest touring car in the world."

4 Al Crundall's 1934 Aston Martin, true dual-purpose car except perhaps for its cycle fenders which were likely to allow mud to spray over driver and passenger, sported a dash crammed with every conceivable dial, including a stopwatch.

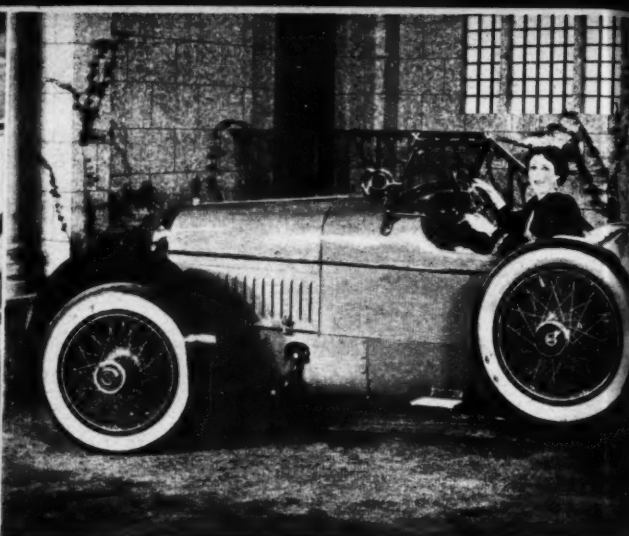
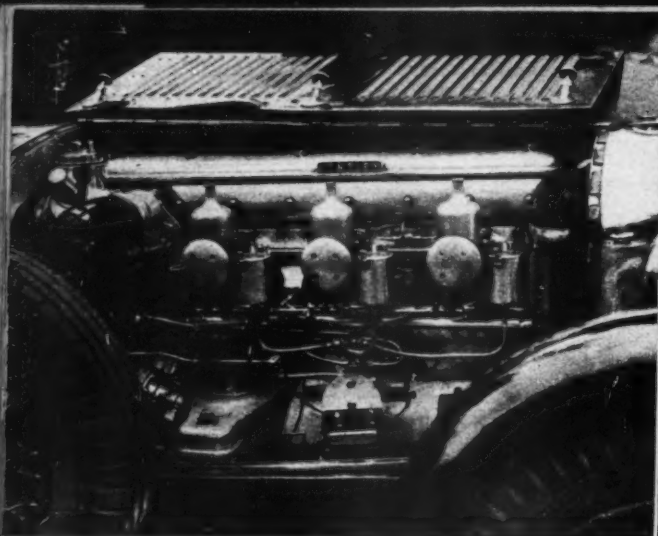
5 Originally a Grand Prix car, this Bugatti Type 59 shows the famed combination of delicacy (as in the wheels) and ruggedness (anywhere else you look) that characterized *Le Patron's* masterpieces. A rich diet for the amateur, Bugatti's cars were made, as he said, "to go, not to stop."

6 The car that was "too good," the 1936 British Squire. A blown four-cylinder, 80-bhp engine with dual overhead camshafts drove this expensive beauty at an average of 110 mph for 50 laps at Brooklands. For a study in evolution, or perhaps in the absence of it, compare the '54 MG on page 44.

7 This arrogant beast was one of the recurrent marvels produced by Germany's Auto Union. Known as the Horch, it had a double-jointed rear axle like the de Dion design. It used superlative coachwork and had a 10-bearing crankshaft.



CONTINUED



SPORTS CARS

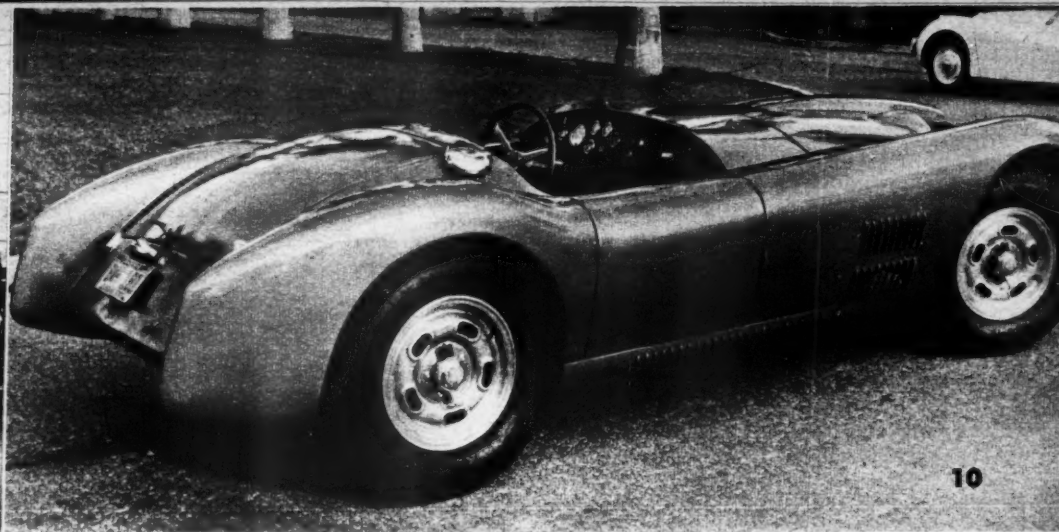
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term). Though these advanced souls might picture themselves in competition, most of them earned their living in more workaday fashion. They had to get back and forth to work (and driving every morning and night in a day when most automobiles sat in the barn, peacefully awaiting their Sunday adventures, was more than a little rakish in itself). Their girl friends, wives, and subsequent families demanded a modicum of comfort. And thus was born the largest, and most dearly loved, category of sports cars: those suitable for errands and travel, for a breath of fresh air and an unfrustrating response to the throttle after a hard day at the office, and — with luck and a modification or two — for a weekend of glory on the local road race circuit. From then on, the true sports car — whether dual-purpose or for competition, has developed in a truly evolutionary way.

To be sure, most of them were stiffly priced. Cheap versions of sports cars were virtually impossible to produce, and the public, with its usual good sense, quickly caught on to the fact. In turn, the more inspired sports car makers reached for the stars. (So did the prices of their products.) Some missed. Some attained greatness to burst like bubbles. Some, like Bugatti and Mercedes, produced cars that bring a catch to the throat of a car lover.

All over the world were individual admirers whose pocket-books simply would not rise to the occasion. The hours and dollars spent on labors of love in backyards from Athabaska to Melbourne must forever be unrecorded in world history,





10

8 Second only to Bugatti fans in degree of fanaticism are those whose mouths water at the vision of an old Bentley of the vintage before Rolls took over. Here we have one of the giant engines, not too distinguished in formal racing.

9 "Don't say Cunningham to me, young man!" Many an oldster responds in this manner to a remark about today's car of the same name (no relation). Here's one reason: this 1919 beauty, boulevard version of a racer driven by Ralph de Palma (the silent film star is believed to be Barbara La Marr).

10 Later Cunningham, C4R of 1952, with 300-bhp Chrysler V-8, displays new vogue for austere competition sports cars. Its magnesium alloy wheels, huge gas filler, and exhausts ending in front of rear wheels are purely purposeful.

11 And here is the luxury Cunningham, with its body by Vignale. No slouch, this car was clocked at over 141 mph. It has comforts to spare along with its performance.

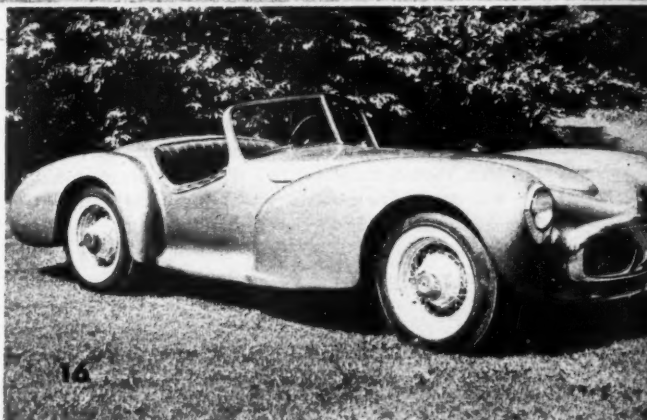
12 Powered by a competent Fiat 70-degree V-8, this fire-engine red Siata Spyder has looks to go with its power. Chief drawback of the little car is its price (\$5300 here).

13 It's often rumored that this French Ford Comete will sell in the U. S., but it seems unlikely at present. One of the prettiest cars on the road, it uses a modified Ford V-8 60.

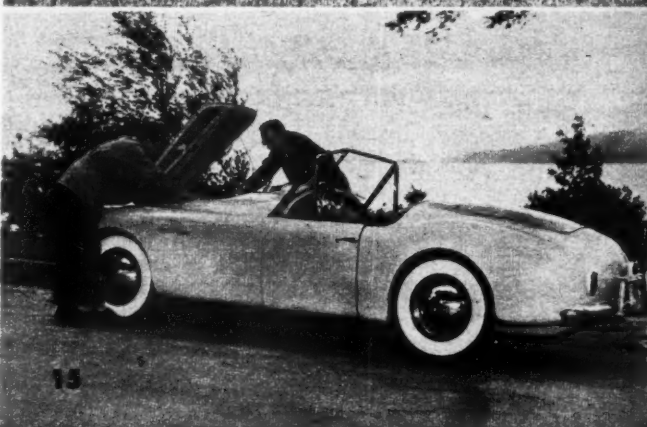
14 This is Bertone's version of what an MG-TD should look like. It is available as the Arnolt car, with this steel and aluminum body that weighs only 40 pounds over stock.

15 At home on the street or in competition, Nash-Healey was first postwar sports car made by a U. S. factory.

16 Brow sports custom "Lampo" has Fiberglas look, uses modified stock parts. Its engine: a full-house Merc.



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SPORTS CARS

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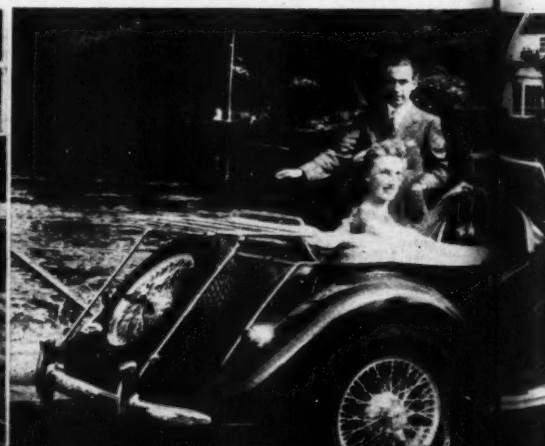
yet rare indeed is the English-speaking town that doesn't remember the wonderful car that Joe, or Tex, or Chauncey built out of an old washing machine and some barrel staves. There were three reasons for this phenomenon in the U. S.: There was money for gasoline; mechanical oddments existed in greater number than elsewhere; and, with the coming of the most overwhelming civilized and luxurious cars ever available to average-income families, big U. S. motormakers found that they couldn't afford the small-potatoes sideline that sports cars had become.

After World War II the picture changed. War-weary citizens all over the world looked for a way out of the sudden doldrums. The U. S., untouched by the war as no other major power, went wild for sports cars. Here was the sports car revolution: Former family-car owners hailed them with delight. At first all of them were foreign; then homemade jobs appeared, showing a new professional touch, to be boosted smartly by the magic of Fiberglas. Production of sports cars was tried on a limited scale by two companies during this period: Nash and its Nash-Healey, with frame and engine built by Nash, body by Healey; Cunningham, with its composite car using any one of several engines and meant strictly for competition.

This flame of interest licked its way quietly through other Detroit companies. Why did an aura of glamour surround the sports car? Was this a new-found market? To find out, Detroit produced its version of the (Continued on page 63)

EVOOLUTION IS THE WAY OF THE MG. With the coming of the '54 TF, owners of earlier models of this frankly beloved sports car may now heave a sigh of relief. The startling popularity of the MG (it leads all foreign cars in U. S. sales) has given the lie to recurrent cries that the little car needs real streamlining. With its optional extra wire wheels (perhaps its single most appealing feature) the TF is far more reminiscent of the TC than of the intervening TD. Tradition, that bugaboo that family-car builders seem to want to consign to the ashcan, is in the ascendant here. Instruments have returned to the center of the dash (MG views this dimly) and have octagonal dials. Seats have old-style separate backs for comfort and safety in cornering. The familiar slab gas tank is still there, its back raked more sharply along with the spare tire. Not that there's nothing "modern": The TF has two unassuming taillights and a low, center-mounted license plate. Push-buttons open the hood.

The new car is about two inches longer (147 inches total) and a little over an inch lower, while the wheelbase remains the same (94 inches) and so do chassis essentials. Higher compression (8.1 to 1), bigger valves, heavier valve springs, and a new axle ratio of 4.875 to 1 make the car happier at speed. It reaches its maximum 57.5 bhp at 5500 rpm. Speeds in all gears are higher without strain. On the basis that most TC owners were finally won over to the TD styling, Abingdon-on-Thames apparently feels it isn't alienating either TC or TD owners with all-out streamlining on the new cat. Only time will tell.





17 Most refreshing of all are the cars built by men who regard the jungle of uncharted design as a challenge. Such a man is Arthur B. Stuart. His car contains a Mercedes four-cylinder engine, gearbox, and differential, at the rear.

18 Badly needed on the competition scene was short-lived Siata-Crosley. Its stateside price: \$1995 less engine.

19 Mighty J2X Cad-Allard of Frank Fries Jr. (handling its formidable wheel) roars around a turn. Obviously not for running errands, this Allard has brothers that will.

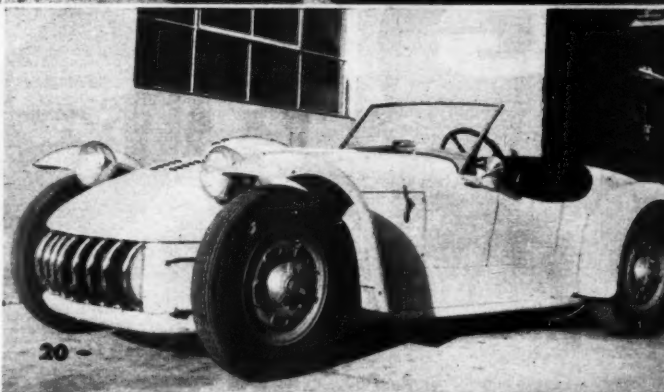
20 A familiar sight on domestic road racing circuits, the Kurtis 500-S sports car is outstanding U. S.-bred road racing machine. A big Hudson Hornet powers this model.

21 Maddest of all the pleasantly crazy Pegasos is the new "Thrill" model. Curving window may be an answer to the problem of combining streamlining and vision. Exterior exhausts may appear on U. S. customs, perhaps on stock cars.

22 What does this MG remind you of? A Riley Sprite? Or a scaled-down SS-100? The 1954 TF Midget represents a near-return to the taut elegance of the MG-TC.

23 TFs will be scarce for a time in the green lushness of Britain's country lanes. Almost all cars produced will head for U. S. shores, here to capture the dollar. Changes include padding on the familiar twin cowl, graceful new fenders, optional wire wheels (wisely used in press photos).

24 Detroit's top news in the sports field remains the Hudson Italia, quasi production boulevard-and-track coupe designed with family-car comforts and sports-car abilities. Car's importance results largely from combination of 1900-pound aluminum body, optional Hornet engine with 170 bhp.





FOR YOUR CAR

1 Headlight shield, \$1.10 2 Automatic tune-up injector, \$14.95 3 Octa-Gane, \$27.45 4 Glasspac mufflers, \$8.75 up 5 Filter-All, \$12.95 6 Life-Time battery, \$29.95 7 Ford skirts \$9.50, louvered \$12.50 8 Exhaust tips, \$1.50-\$1.95 9 '51 Ford grille bar, \$17.50 10 French-type headlight rims, \$4.95 11 '53 Ford grille bar, \$6.50 12 Cadillac-type headlight rims, \$6.95 13 Spark plugs, set 89c 14 Rocket hydraulic brake booster, \$19.95 15 Koo-Koo horn, \$5.95 16 Bermuda bell, \$3.95 17 Side mirror, \$2.35 18 Seat-cover switches; sets about \$10 up 19 Defiance gas cap, \$2.75 20 Yankee backup lights, \$5.95 21 Bug deflector, 49c 22 Ripple discs with knock-off hubs, \$22.50 for four 23 Lyon wire wheels, \$20.95 for four 24 Cadillac hubcaps, \$12.95 for four 25 Calnevar wire wheels, \$49.50 for four 26 Simulated wire wheels, \$19.50 for four 27 Moon discs with knock-off hubs, \$22.50 for four 28 Falsie tire kit, all cars \$24.95 29 '49-'50 Ford bullnose, \$2.95 30 Waxes, polishes, etc., \$1.00 up 31 Wolf whistle, \$3.95 32 Pyrene fire extinguisher, \$7.95 33 Appleton spotlight, \$14.95 34 U.S. license frames, \$2.75 each 35 Mile-O-Meter, \$9.75 36 Gas mileage gauge, \$6.45 37 Safety belt, \$11.50 38 Chrome chip guards, \$2.95-\$3.95 39 Remote control Studebaker, \$6.95

SANTA'S SACK HAS NEW GOODIES IN IT THIS YEAR.

WHETHER YOU WANT TOP-NOTCH PERFORMANCE OR

A GLITTERING NEW LOOK, YOU'LL FIND IT IN MT'S LIST

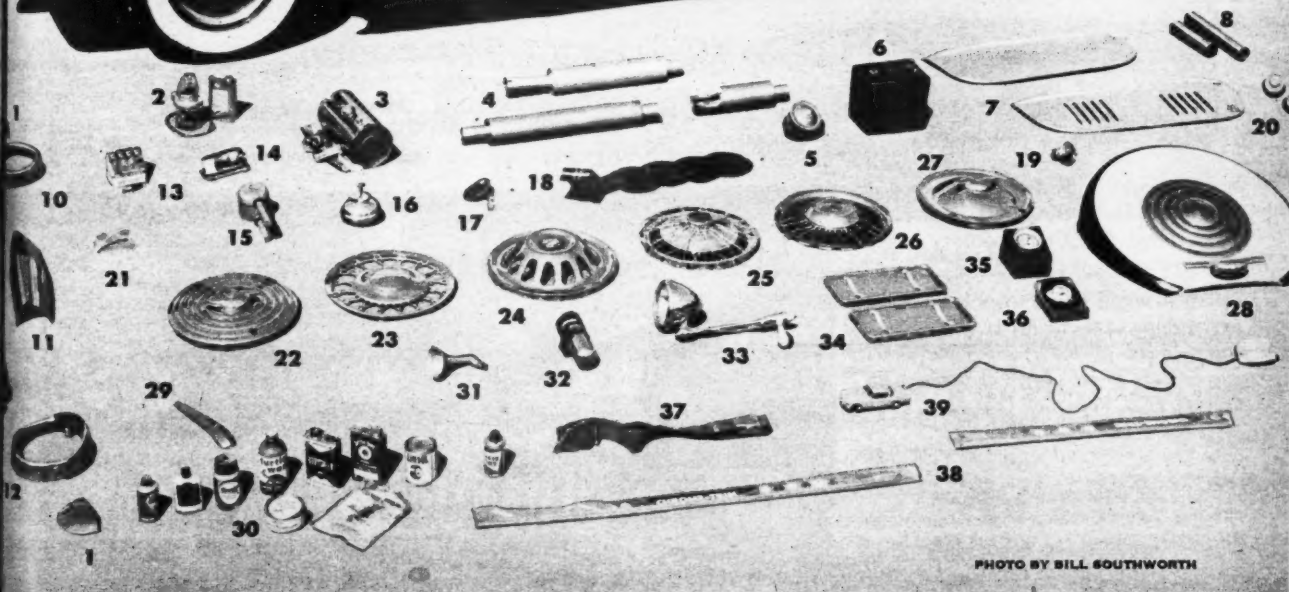
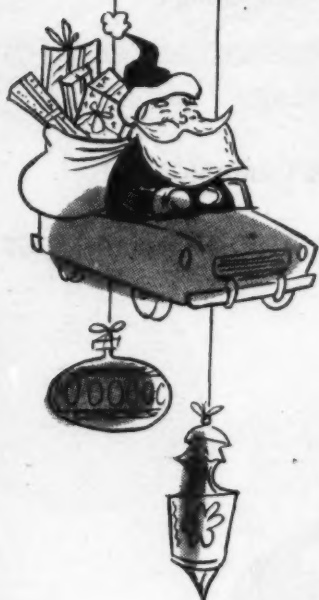


PHOTO BY BILL SOUTHWORTH

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GIFTS FOR YOUR CAR continued

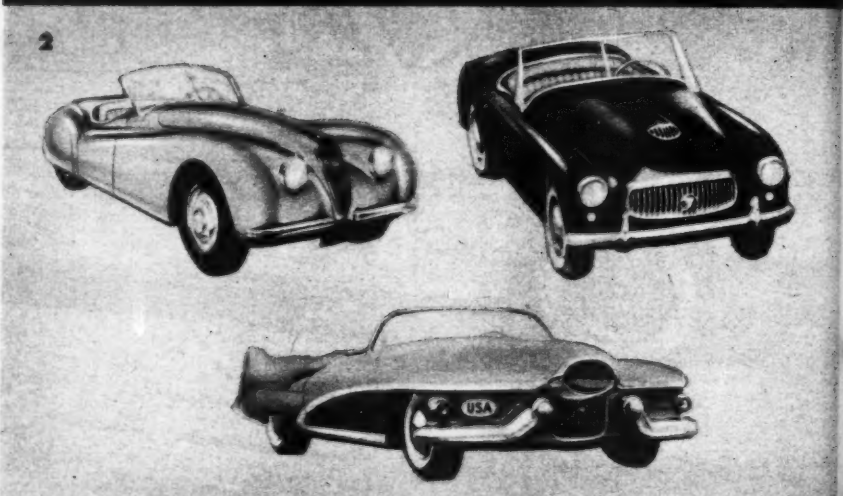


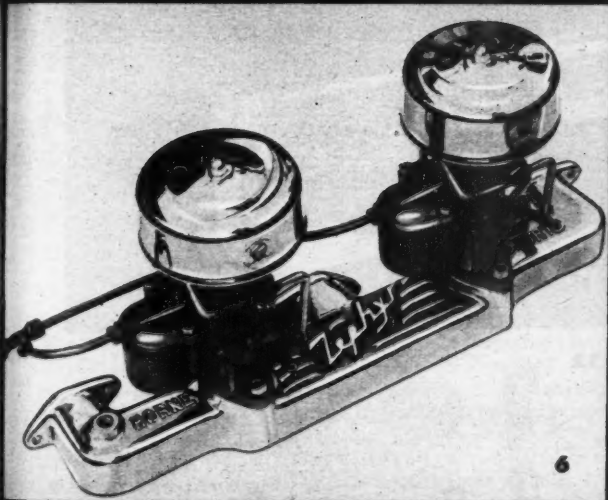
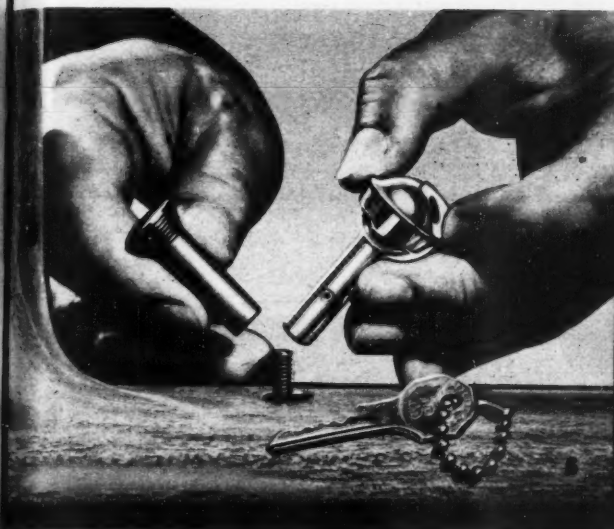
1 For a Christmas present to yourself, why not banish the drudgery of cleaning food spots from your car's upholstery? Travel Tray is \$4.45 from Mabren Industries, 8666 W. Pico Blvd., Los Angeles

2 Ready for sanding and easy assembly are these models of specials and sports cars. Jaguar, Nash-Healey, or Le Sabre, \$1.50 each from Reginald Denny Industries, 5751 Hollywood Blvd., Hollywood

3 Park-O-Bank sticks to your dash with pre-set adhesive, holds five nickels and 10 pennies handy for parking meters or tolls. About \$1.25 at accessory stores

4 Easy to attach with a windshield frame screw, Pope's Du-All Meter will remind you to drive so that precious gas won't gurgle away so fast. \$4.98 complete with bracket. H. J. Pope Co., Lakewood, Ohio





5 Safety Kid locks rear doors; ignition key unlocks it. \$4.25 for two from Semco, 212 W. Florence Ave., Inglewood 1, Calif.

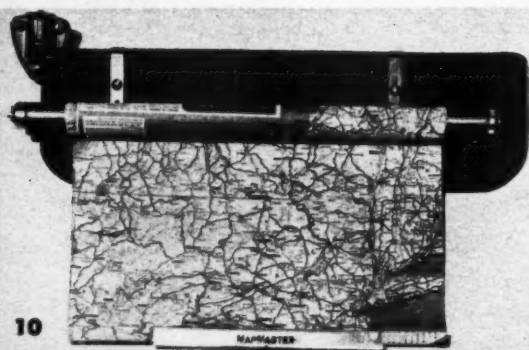
6 Dual intake manifold kits for Ford Zephyrs. Satin \$39.95, polished \$43.95; includes throttle link and fuel line. From Bell Auto Parts, Dept. P, 3633 E. Gage Ave., Bell, Calif.

7 Oil-Vue, the new dashboard oil level gauge, needs no connection to the engine, for a rubber tube attaches to its own dipstick. Chrome and lucite, about \$5.00 at auto suppliers

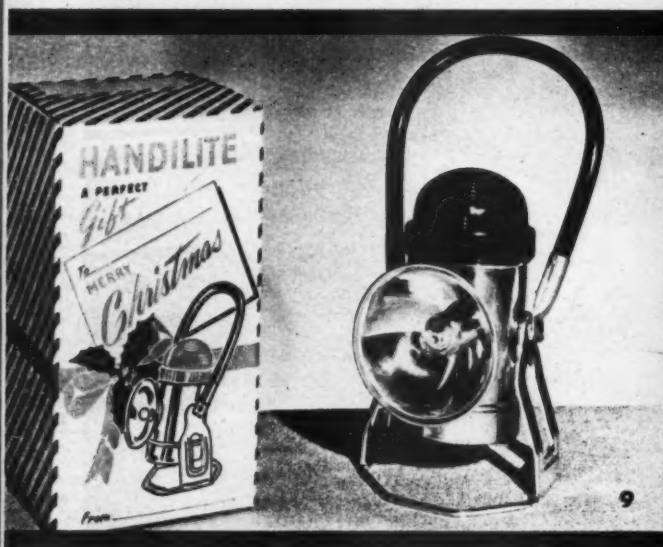
8 Your youngster can play safely on your car seat when he has a Wiggly car belt to keep him from being thrown around. \$3.00 from Webel, P. O. Box 117, East Station, Yonkers, N.Y.

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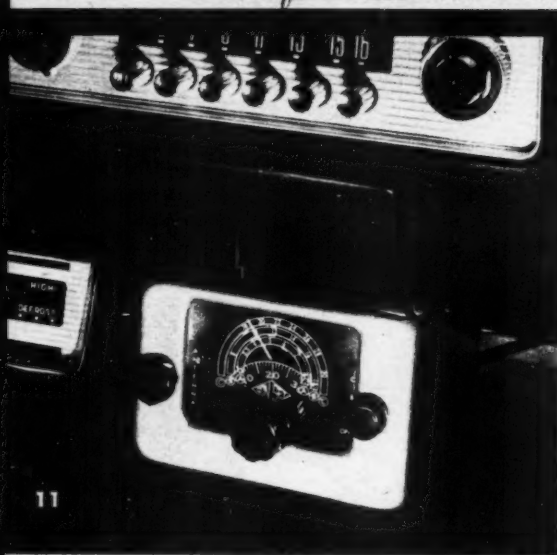
GIFTS FOR YOUR CAR continued



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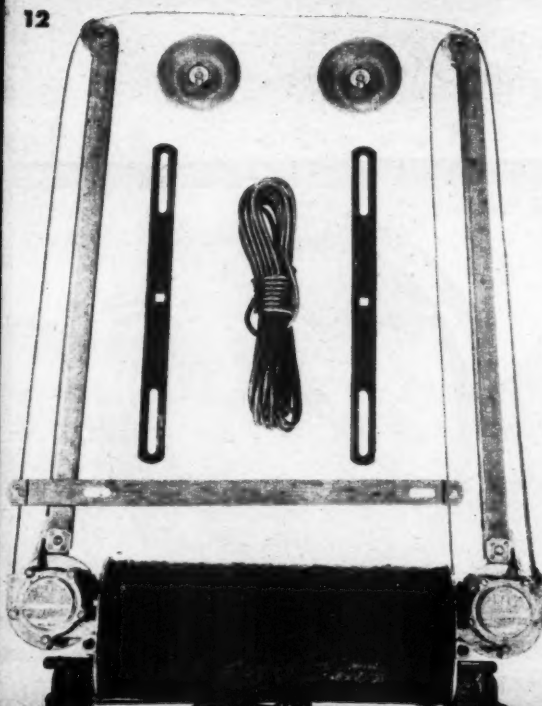
9 Handilite has dozens of uses around your car or house. It gives a red flashing signal, white floodlight, or both: \$6.95. Economy Lantern Co., 812 N. Sixth St., Sturgeon Bay, Wis.

10 Mapmaster keeps the current road map handy. It's \$3.95 from Mapmaster, Dept. 63, 205 W. 19th St., New York 11

11 Keep up with world problems and improve your car radio's reception in out-of-the-way spots with this Gonset short-wave converter. About \$45.00 at radio jobbers all over the U.S.

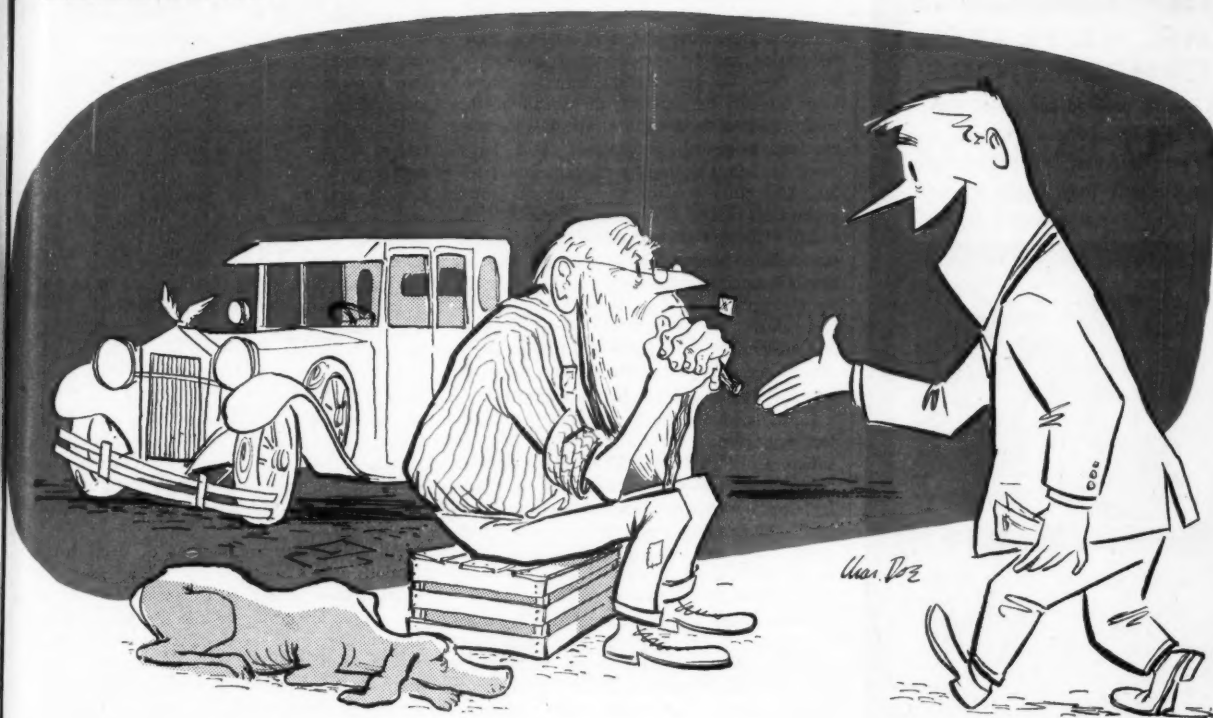
12 Have the final touch of grandeur with automatic window lifts. Complete kit for two windows, \$39.95. Specify year, make, model. Eastern Auto, 3319 S. Grand Ave., Los Angeles 7

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A MEDICAL SURVEY OF

CLASSICITIS

By Professor Rollston Lee Brunn, M.D., Ph.D., DV-32, L-29

Illustration by Chuck Doe

NOTE: MOTOR TREND was at last successful in obtaining the following report by the distinguished Professor Brunn, which contains matter of extreme interest to classic car fans. Out of respect for Professor Brunn, we have substituted the report in its entirety in place of our usual classic car article.—Robert J. Gottlieb

MY ESTEEMED COLLEAGUE Professor Kinsey contributed greatly to the world of medical science with his recent disclosures. As far as detail is concerned, he is most thorough; but he omitted all reference to the contemporary disease classicitis, or classique collectitis, which has a most deleterious effect on American family life.

The illness affects young and old males and in isolated cases has been discovered in the female. The first symptoms appear when an afflicted patient carts rusted and greasy relics of another era into a well-kept backyard. In advanced stages, patients have been known to disassemble mechanical items (such as transmissions) on Oriental living-room rugs. From inception of the disease to advanced stages, the patient displays a glassy stare and is prone

to exclaim unexpectedly, "Classic cars oboy oboy!"

To understand the mental aberrations causing a patient to hoard bits and particles of obsolete machinery, it is necessary to define medically those objects referred to as classics. The definition is something which all patients cleverly avoid, and this by itself is sufficient to raise doubt as to mental equilibrium. The most comprehensive definition which afflicted individuals will admit is that a classic is a mode of conveyance manufactured between 1928 and 1938 and equipped with two cigarette lighters, one mounted on the instrument panel, the other in the rear tonneau. This definition contains all the elements found in a true classic, provided (and this is the catch) that the rear tonneau lighter was installed by a custom body builder.

Armed with the definition, patients are troubled with the problem of where to locate a specimen. They search endlessly in remote places but locate a majority right where one would expect to find them—because that is where they belong, though patients have become violent on being confronted with this opinion—in a

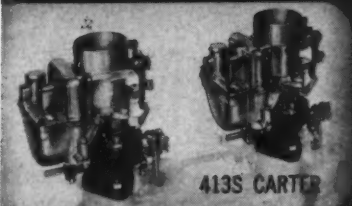
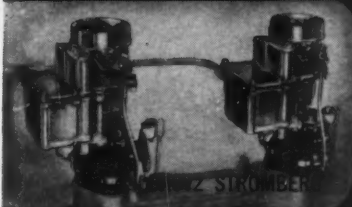
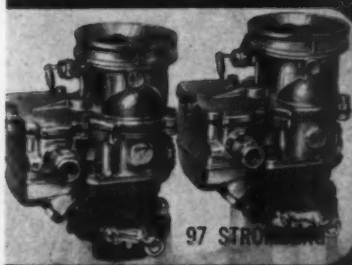
junkyard. The more enterprising enthusiasts cultivate close relationships with elderly individuals who are already possessed of specimens. This method of acquisition succeeds only when the owner is more than 90 years of age.

Patients acquiring specimens are troubled with a lack of information concerning the value of the specimen. Of the many articles concerning this phase, the best sets forth as a general guide that the buyer must first determine the amount that he can realize upon a forced sale of the vehicle. Restoration costs are then disregarded, the forced sale price multiplied by seven and the result carried to the nearest half-dollar. Then, a mortgage is executed on the family homestead and the purchase consummated.

After the purchase the vehicle is towed to the residence of the buyer where it is completely disassembled and restituted—often to non-exacting scientific standards. This labor takes two or three years to accomplish, together with many additional thousands of dollars. The passage of time and expenditure of funds results in an accomplishment gleefully referred to as a restoration, virtually an indefinable

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FORD & MERCURY:
97 Stromberg Carburetor (illus.)
48 Stromberg Carburetor
81 Stromberg Carburetor
18A Holley Carburetor
59A Holley Carburetor
88A Holley Carburetor

CHEVROLET:
BXOV2 Stromberg Carburetor (illus.)
1 3/32" Venturi
1 5/32" Venturi
W1-574S Carter Carburetor

PLYMOUTH:
413S Carter Carburetor (illus.)
Especially suited for Plymouth but adaptable to all cars.

These triple-chromed carburetors are processed through all operations under rigid supervision and exacting requirements. HC engineers have thus supplied the motoring public for thirty years with the ultimate in custom automotive specialties.

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Fifty-two

term. Enthusiasts divide restorations into two classes called semi and full. The only difference between the classes is that the semi-restoration can be completed in two years, while the full restoration requires three. Very few of the patients can do all of the work required in a restoration: It generally requires electrical, mechanical, and body work in addition to upholstery and plating. Unfortunately for the "purists" some enthusiasts can do *none* of the work required.

After the job is completed, the patients stack their specimens at a given location so that all specimens can be carefully inspected by the public. It is at these meetings that the vehicles are scratched, kicked, slammed, and otherwise abused by the public, all of which necessitates additional repair to the cars and to the psyches of the patients.

Local meetings have provided an excellent opportunity for medical observation of sufferers. All patients refer to themselves as "enthusiasts"; those identified with the "hobby" for more than 90 days are called "purists." Outstanding from the physical standpoint is the fact that all enthusiasts have the finest vehicles that money can buy—and their children all have rickets.

Patients use a language which is peculiarly adapted to their interests. Their customary greeting to one another seems to be "Wie geht's?" Other phrases include goosenburg, piece-of-arrow, and digdat craze airscoop. Two natural enemies exist, one being a rascal referred to as Gar Thleeb. He once described a full restoration in a 5000-word article. This caused a sore spot with those patients who lost their homes, families, and fortunes working 4200 hours to complete a repair which restrained the number six piston from straying into the number four hole. The other enemy is referred to as a yo-yo (apparently a person with close cropped hair, many Series E bonds, and a specimen named after the MIG Russian fighter plane; further study is definitely necessary on yo-yos).

Patients have divided themselves into three groups and refer to themselves as mechanical, scientific, and esthetic enthusiasts. The mechanical enthusiast is mainly interested in machinery and its operation. He frequently stuffs a 16-cylinder engine into a Crosley chassis or supercharges the supercharger on a Mercedes. The crowning achievement of his car may be its ability to lug up a hill in high gear. He thrills to this performance even though the car may be unable to do anything else.

The scientific enthusiast thrills at his ability to have a duplicate car built from the parts left over after a restoration. He is adept at using left-handed monkey wrenches and advocates the use of scientific innovations such as hard rubber camshafts to give additional valve bounce. Patients in this classification frequently support themselves by purchasing old car literature at 25¢ per pound and reselling it at \$5.00 per page. They also charge handsome prices for giving stereotyped restoration advice which amounts in substance to "If it won't fit, get a bigger hammer." The scientific enthusiast spends a great deal of time in acquiring lists of mechanics and artisans who can do

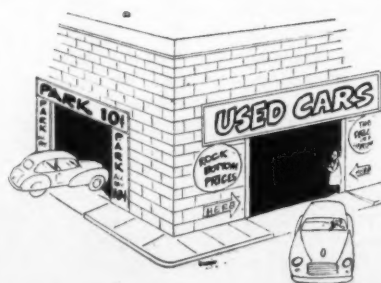
necessary restoration work. He is referred to as "scientific" due to the exacting schedules he devises so that a car can be driven from one mechanic to another for required work, thus accomplishing a restoration in a minimum amount of time.

The esthetic enthusiast directs his interests to appearance. He is prone to add modern fenders and grilles to functional body designs and to devise lowering blocks as well as insidious means of hiding hubcap markings and other identifying insignia. He is not concerned with toothless gears but thrills to a body style that appears to be 10 years newer or older than it actually is. Because of this, one can never get a straight answer from him regarding the exact age of a specimen. He is instrumental in proposing discarded makes such as Rickenbacker, Star, or Rockne as classics and he points with pride to designs with eight wheels, dummy stacks, or airscoops. In general, esthetic enthusiasts are opposed to small cars, greasy hands, Detroit products, and the excess profits tax.

All enthusiasts are victims of deep frustrations which arise, oddly, as a result of driving their chosen specimens. Members of the public are prone to ask the make, year, horsepower, and speed of a specimen. Answering questions becomes burdensome, and some collectors have devised a system by means of which a card is raised with an appropriate printed answer to the usual questions. One clever enthusiast was recently driving next to a Hillman Minx. The Hillman driver asked how fast it would go and the enthusiast proudly held up a card which read "125 mph." At the next signal the two drivers engaged in a "dig" which the Hillman won handily. When the British car driver smiled broadly, the clever patient held up a sign reading, "Drop dead."

I trust that the esteemed members of the medical profession will be greatly aided in their chosen profession by this treatise on a spreading and infectious disease. I fully realize that it is customary to terminate a treatise such as this with a statement to the effect that I must close so I can restore my '34 Dietrich Packard, thus inferring that the writer has succumbed to the sickness. I am sorry to disappoint my anticipating colleagues, but I do *not* own a '34 Packard. I was lucky enough to find a Hispano Suiza. It has original paint and upholstery but dig that craze Chrysler mill!

—Kollston Lee Brunn



Motor Trend

Spotlight on Detroit

(Continued from page 9)

per day mark, you can be sure that most DeSotos will be sold equipped with this desirable extra. Nevertheless, a dry-plate clutch and standard transmission with or without overdrive are available for those who prefer to drive their new Automatic manually. Considerable attention has been paid to details like . . .

EDGE-LIGHTED INSTRUMENTS that stand out like a cat's eye at night. Only the pointer and numerals appear lighted; the rest is blackness so there's little or no annoying reflection. Honest round gauges (not warning lights) make up an attractive and practical panel. A thoughtful feature is switching the radio speaker and glove compartment so that the latter is closer to the driver. The panel as well as the rest of the interior is luxuriously color-keyed to the exterior finish. Upholstery is, for the most part, nylon-faced for durability and good looks. Outside, you'll notice truly massive new bumpers, an attractive though toothsome grille, and an abundance of chrome. The body shell being dimensionally the same as Chrysler, entrance and exit is easy.

DODGE PRICES are holding firm for 1954. Seventh in sales with 209,227 units delivered during the first eight months of 1953, this company's action is bound to dampen the tendency of others to be influenced by creeping inflation. Plymouth is also toeing the line and Hudson has even made substantial reductions on some of their models. Despite cold facts and figures, price structures are complicated by the unparalleled popularity of extra cost accessories. In the case of the Buick Super, Dynaflo, an expensive option, has become more popular than a heater. 99.3 per cent of 1953's Supers were delivered with Dynaflo; 99.2 per cent were delivered with heaters. Power brakes rank next to heater and radio on the Roadmaster. So far, 93.4 per cent of 1953 Cadillacs have been delivered equipped with power steering. In one area of Texas, 90 per cent of Cadillac buyers specified air conditioning, a \$600 item! All of these luxuries will be available on the "lower priced" cars for 1954. So you can see that it's possible to spend nearly \$4000 for a Ford if your credit is good enough. Speaking of credit, something along that line is due the mathematician who figured out that . . .

327,452,928 DIFFERENT CADILLACS could have been built in '53 without duplication if advantage were taken

Ease your shopping chores
with the handy coupons
below and assure the men
on your gift list year-round
reading enjoyment.

Throughout 1954 they'll
remember you and your gift
when they open up their
monthly issue of *Motor Trend*.

Jam-packed with authori-
tative articles on the latest
cars, events and innovations
in the automotive world,

Motor Trend is a gift that
won't wear out . . . But

act today as this special
holiday offer expires

January 15, 1954. A

beautiful gift announcement
card will be mailed just
before Christmas. First issue
will be mailed during the
holidays. Overseas announce-
ments will be sent air mail.

"My worries
are all
over!"



ONE FULL-YEAR GIFT SUBSCRIPTION \$3

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Enclosed is \$.....for one subscription at \$3 and.....gifts at \$2 each

Please send.....magazine as my gift for one year to

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Please send.....magazine as my gift for one year to

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Additional names may be written on a separate sheet and
the entire order given your newsdealer or mailed direct.



Reduced gift rates apply to HOT ROD and
CAR CRAFT magazines too . . . they make
wonderful combination presents for Christmas!

of all options. Looked at another way, they could build 1953 models until 5228 A.D. at the present rate of production without repeating themselves. Still in a cost-conscious vein, we understand that the . . .

NEW CHRYSLER PROVING GROUND involved the movement of more than two million cubic yards of earth—the largest private contract of this type ever let in the state of Michigan. This 3800-acre tract of land lies about 50 miles west of Detroit, and is scheduled to be placed in operation sometime before the end of the year. Previously, most testing was cross-country. When completed, it

will include a 10-or-so-mile-long endurance road designed to multiply normal wear by a factor of 10. The 4.7-mile, high-speed oval is banked so that a current Chrysler could (and it can't) travel at 140 mph with all forces in equilibrium. To turn the car over, you would have to speed up to 240 mph—this with present-day suspension. Naturally, all this is for the future. Not so far in the future, though, is the . . .

NEW BUICK SPECIAL V-8, a sealed-down version of the present Super and Roadmaster engine. It should run around 260 cubic inches, and will probably mount a two-barrel car-

buretor. Other GM V-8 plans lack tooling. Those that like the present Pontiac in-line sixes and eights will be able to trade-in on a similar '54 model. Chevy will continue with the engine that has pleased its share of the American public for a long time now. What changes there are will be directed towards better breathing. Consequently, look for slightly increased horsepower. The splash-lubricated 235-cubic inch standby will give way to the newer pressurized version previously offered only with PowerGlide. Oldsmobile will pack more power into their V-8, and for the uninhibited, there's always the Daytona version available. This consists of the 1951 high-lift cam with a ramp ground to accommodate mechanical tappets. Higher ratio 1952 rocker arms are used as well as a four-barrel carburetor and blocked-off hot spot. Dual exhausts and "export" chassis parts complete the package. To feed your new engine, you might try . . .

SHELL TCP (MT, Aug. '53), sale of which has been skyrocketing lately. A really clever ad campaign which plugs the mysterious initials (stand for tricresyl phosphate), sells the public, and doesn't offend Detroit engineers, sparks Shell's big push. The ad men come awfully close sometimes to saying that it does more than clear spark plug fouling (which it doesn't). So far, we have stuck closely to fact, but we can't escape . . .

MERGER RUMORS that float around Detroit periodically. This time they involve Hudson and Nash. Two weeks ago it was Hudson and Packard. Next week, it's your guess. Pooled research facilities, easier absorption of tooling costs, and integrated manufacturing (Nash, for example, making bodies for Hudson) all contribute to the logic of the idea. When the real merger comes along, the press will probably be the last group to hear of it. Back to fact again is the pleasant news that . . .

KAISER PRODUCTION will start to roll at Willow Run on October 26. The long shutdown was ended with the signing of a new labor contract. First production will be '53 models as next year's tooling is not ready. Another step towards uninterrupted production is Hudson's announcement that Borg-Warner automatic transmissions will replace the Hydra-Matic in the near future. Not so reassuring, though, is the . . .

HEADLINE OF THE MONTH from the Birmingham (Mich.) *Eccentric*: "Autos Bash Way to 1953 Wreck-ord."

—Don MacDonald

Motor Trend



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FOG HORN
Complete with
FINGERTIP
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FLARE SKIRTS

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Ford	36-53	Ply	35-53
Merc	39-53	Dodge	35-52
Chev	36-53	DeSoto	35-53
Olds (exc. 98)	35-53	Chry	35-53
Pont	35-53	Willis	52-53
Buick	35-41, 50-53	Stude	35-52

Skirts are all steel with concealed rubber liner. The easily installed skirts are primed for paint.

ROARS like a lion in the street! BELLOWS like a bull . . . a deep penetrating BLAST or a soft note for pedestrians.

THE REAL Continental Kit

\$43⁴⁵

49-53 Ford
49-53 Chev



For All These Cars, Too!

Merc 51-53	\$119.95
Olds 88, 51-53	124.50
Olds 98, 52-53	124.50
Buick 51-53, Super, RM, Skylark	99.50
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Kit includes sturdy tire mount, lock mechanism, tire cover, bumper extension, stone deflector, chrome hub cap and misc. hardware.

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Triple chrome, heavy gauge metal. DURABLE, finished to a high luster.

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SET OF 4 WITH LOCKS
(These chrome goodies regularly priced \$99.50)

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25% deposit on all orders, F.O.B. Burbank. Add 3% sales tax in Calif.

HIDE-AWAY REAR AERIAL KIT

3 section beautifully chromed hide-away aerial and long aerial lead wire for custom REAR mounting.

AERIAL with 100" Wire	\$7.45
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AUTO DISCOUNT CO.

Dept. 12, P.O. Box 131
BURBANK, CALIFORNIA

German Auto Industry

(Continued from page 21)

for \$8.75 to \$10 a month. There are two qualities of gasoline available: regular fuel at 62 cents per U.S. gallon and Super (with a higher octane count) at 74 cents per gallon. Also widely used is diesel oil, 39 cents per gallon. Uncanned engine oil averages 49 cents per quart; brand oils bought in closed containers, 75 cents a quart.

Street conditions in Germany are most distressing. Naturally, in many places the highway system was destroyed in the war. Although the vehicle tax is "duty-bound" (designed specifically for street maintenance) only a portion of the revenue is actually assigned to this need. To the objective observer it immediately becomes apparent that German streets can no longer accommodate the enormously increased traffic. Although remedies have been sought, what has been accomplished is dwarfed by ever-increasing demands. With the strides the German automobile is making, a catastrophe is imminent unless the government takes a hand on a large scale. In Germany (the Federal Republic and West Berlin) there is one car for every 55 people; with trucks included, the ratio increases to one for every 37. These figures don't even include cars of the occupation troops. Today there are 862,700 cars in use in Germany. With trucks, busses, and motorcycles, the number rises to 1,527,000.

To accommodate this traffic there is a total of 7,912,521 miles of streets, of which 1312 miles are autobahns (similar to the Pennsylvania Turnpike). First-class autobahns and highways able to take modern traffic total 46,930 miles; all other streets are pretty antiquated or in very bad condition. Whoever has traveled in other countries cannot understand how a government can treat such a weighty problem with so little sense.

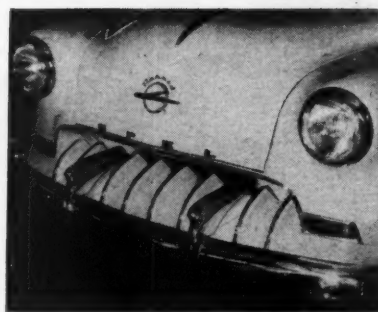
Design of German and, generally speaking, all European cars, follows conditions dictated by the area. Europe is poor, and the greatest portion of her people are unable to buy and maintain large and comfortable automobiles. Designers must therefore produce cheap and economical vehicles, robust throughout their construction. Diesel-engined cars are much in demand by the small-business people who must have low operating expenses and by the farmers and professional people, who have long distances to cover. In this field

Daimler Benz pioneered by designing a passenger car whose average fuel consumption of 34 miles per gallon of diesel fuel makes it just about the most economical passenger car in the world today. Recently the Borgward firm also brought out a diesel sedan, understandable when you compare the cost of gasoline. Heavy production continues in cars of small and medium size. Usually equipped with performance-proved engines, these cars almost always have hand-operated three- or four-speed transmissions. Most German cars are too underpowered to use an automatic gearshift.

Generally, our attitude toward the automobile is completely different from that of the American. The European owner considers his car more than a means of transportation. He not only wants to be driven—he wants to drive. This type of thinking paralleled the development of the Continent, which grew in response to a series of strict demands, ignorant of the width, the wealth, the freedom of America. The structure of the automobile industry, therefore, differs from that of the U.S. In their development the old European factories employed unique concepts—and here an especially important phase comes to mind, namely that of sport.

International competition is as old as the automobile itself. The racing and sports models built by Daimler Benz bear strong resemblance to its stock models, and when we examine the chassis of the latter, we recognize the similarity to DB's modern race cars. It is odd to think that beneath the tradition-bound and distinctive body design of Mercedes Benz lies what the world today acknowledges as among the most modern of automotive designs. One cannot close this phase of the story without mentioning one other man, someone whose designs prove that he has incorporated (especially in the Volkswagen and Porsche 356) experience gained from racing cars. He was the late Dr. Ferdinand Porsche. The strange part is that the present general manager of the Volkswagen works—and the Volkswagen, of course, was Porsche's design—considers automobile racing sport in its present form a circus. The old firms almost unanimously challenge this.

Here are major German manufacturers and highlights of the cars they produce:



RODOLFO MAILANDER

Four-cylinder Opel has this pert grille

Auto Union: DKW Meisterklasse, with two-cylinder, two-stroke, 22-bhp engine and front drive. Top speed, 62 mph. \$1600. DKW Sonderklasse has three cylinders, longer body, is otherwise similar. Built 25,800 passenger cars in 1952.

BMW: 501, six cylinders, 64 bhp; torsion bars front and rear. Top speed, 86 mph. Production began in late 1952. \$4300.

Borgward: Hansa 1800, four cylinders, 57 bhp, 78 mph. \$2550. Hansa 1800 Diesel gets 36 mpg, costs about \$400 more. Hansa 2400 has six-cylinder, 81-bhp engine, automatic transmission; \$3900. Total production for 1952, 15,000 units.

Champion: Two-cylinder, two-stroke, 13-bhp rear engine; rubber torsion springing; \$1200. First renewed production 1953.

Daimler Benz: Mercedes Benz 170 S-V: four cylinders, 44 bhp, 72 mph; swing axle (like all Mercedes models); \$2500. 170 S-D: diesel, four cylinders, 39 bhp, 65 mph, \$3000. W-180: four cylinders, 52 bhp, 78 mph, \$3200. 220: six cylinders, 79 bhp, \$4100. 300: six cylinders, 114 bhp, \$6500. 300-S: six cylinders, 150 bhp, 110 mph, \$11,000. Built 36,800 passenger cars in 1952.

Ford: 12-M Taunus: four cylinder, 37-bhp L-head engine; 68 mph, \$1700. Similar to new English Anglia, page 39. Comes in miniature ranch wagon.

Gutbrod: Superior Standard: two-cylinder, two-stroke engine with 19 bhp; 62 mph, \$1200. Swing axle in rear. Superior Luxus 700: 25 bhp, 62 mph, \$1320; with fuel injection, 30 bhp, 68 mph, \$1435. Production (1952) 1920 passenger cars.

Goliath (Borgward affiliate): GP 700 and GP 700-E: data similar to two Gutbrod models but about \$200 higher. Also available as GP-700 Sport with 31 bhp, \$2425. Built 12,800 cars in 1952.

Lloyd (Borgward affiliate): two-cylinder, two-stroke, 12-bhp engine, rear swing axle, 47 mph; \$1150.

Opel (General Motors affiliate): Olympia Rekord: four cylinders, 46 bhp, \$1600. Kapitän: six cylinders, 66 bhp, \$2500. Built 66,700 cars in 1952.

Porsche: four-cylinder, horizontally opposed, air-cooled engine; rear swing axle and transverse torsion bars. Speeds vary from 87 to 109 mph, bhp from 39 to 69, prices from \$3400 to \$4000. Built 1300 cars in 1952.

Volkswagen: engine and chassis similar in design to Porsche, but 25 bhp; top speed, 65 mph; price \$1300. Production for 1952, 136,000 cars.

—Günther Molter



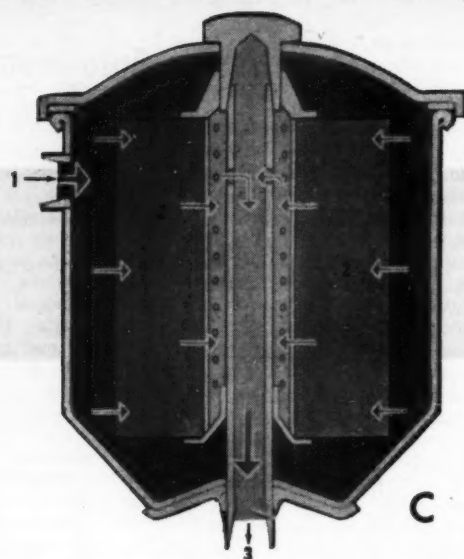
"Big" Opel is a six-cylinder car that looks like its Australian cousin, the Holden



A



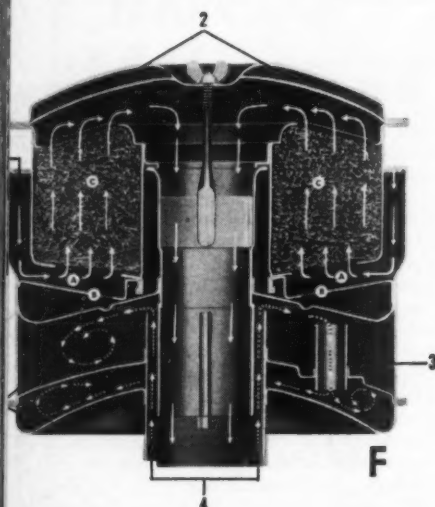
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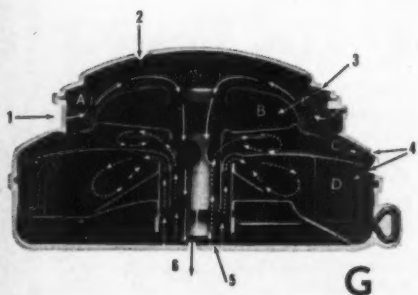
C

MODERN GAS, OIL, AND AIR FILTERS ARE NOT GIMMICKS. THEY ADD THOUSANDS OF MILES TO THE LIFE OF YOUR CAR.

KEEP



F



G

TOO MUCH DIRT in your car's diet can give it chronic indigestion and send your engine to an early grave. If our bodies were half as finicky, we'd never see our first birthday. A precision-built, high-output automotive powerplant just can't digest even tiny amounts of impurities in its diet of gasoline, air, and oil without showing it in excessive wear, lost performance, increased fuel and oil consumption, and short life.

So the manufacturer has put a slew of filters on your car to keep as much of this dirt as possible out of the innards. Or perhaps we shouldn't say "as much as possible"; actually, the American auto producer "filters" his car as completely as is economically practical. The efficiency of filtering systems, like almost everything else, is highly responsive to the almighty buck—and thereon hangs a fascinating and important tale for John Q.

First of all, just what are the vital filtering systems on your car? Probably most important is the filter for the combustion air to the carburetor. Dirt and dust entering at that point will play hob with the upper ends of your cylinders, top piston rings, valves, and can even get into the crankcase at high speed. Open intake stacks are okay on racing engines that are rebuilt every 500 miles or so, but your car would be on the rocks in 10,000 miles without a good carburetor air filter, even in "dustless" conditions.

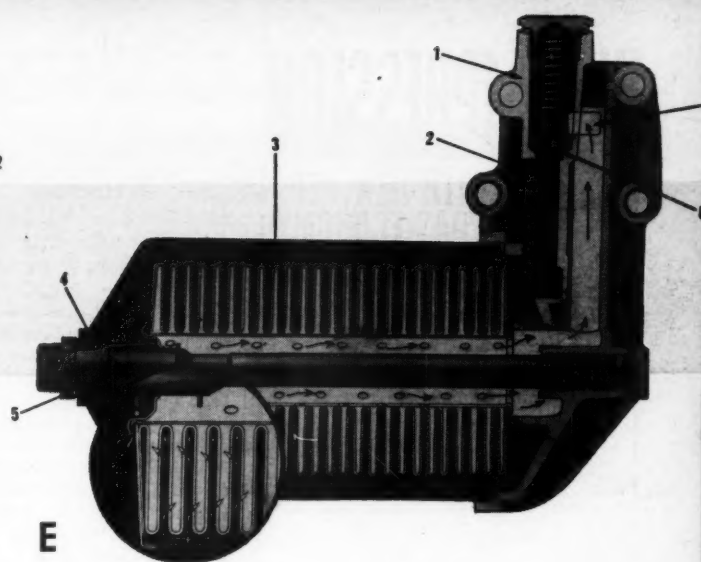
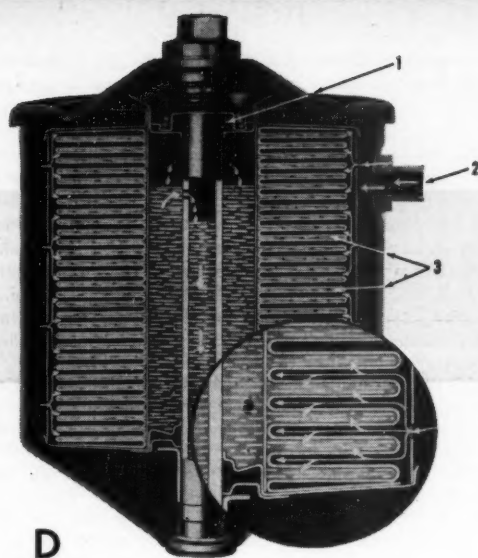
And, in this same category, we mustn't forget the filters for the ventilating air to the crankcase. Dust in the lubricating oil is as rough on bearings and lower cylinder walls as dust in the combustion air is on the upper end. Some cars also

have filters to prevent dust from backing up through the crankcase ventilator outlet pipe at low speed.

Then there are the filters to clean the gasoline flowing to the carburetor. They are primarily to protect against clogged jets and metering rods, stuck accelerating pump pistons, etc. (Even with elaborate filtering, we still have problems with gas, as we'll see later.) All cars have a gas filter in unit with the fuel pump, and some models have an auxiliary unit mounted on the carb or tank.

Last, but certainly not least, we have oil filtration. This business is a comparatively new science; only in the last four or five years have oil filters become practically universal on American passenger cars. High-precision tolerances and finishes—plus hydraulic valve lifters—on our new engines have forced the issue. Dirt in the lubricating oil is a lot rougher on the '53 Olds Rocket engine than it was on its 1940 straight-eight counterpart, believe me. The abrasive particles of metal, dirt, and carbon in the oil will quickly foul up close fits and gum up valve lifters and guides. Modern oil filtration, on the other hand, can give you really clean crankcase oil for several thousand miles, and will greatly extend the useful life of the engine. As a matter of fact, our late engines are averaging nearly *twice* the mileage between major overhauls that engines did 10 or 15 years ago! Modern oil filters are a vital factor here.

But now let's take a closer look at the various filtering systems and see how they work, what they do—and don't do—for us, how to get the most out of them, and what we might do to improve things:



IT CLEAN!

By Roger
Huntington

Air Filtering. The designer of a combustion air-filtering system has a real headache. He's got to get just as much dirt out of the air as he can, but he's also got to do it without excessively restricting the air flow or causing objectionable intake roar, without taking up too much space—and with a very minimum of cost. Unfortunately, the requirements are not very compatible.

When air filters were first used back in the mid-Twenties, they consisted only of sheets of coarse felt gauze in a small perforated casing; the air passed directly through the gauze and the dust clung to the fibrous surfaces. The efficiency here—that is, the proportion of the total solid impurities in the air that the filter removed—was pretty good, but as the thing loaded up with dust, air restriction became excessive.

Then engineers tried to get less flow restriction with good efficiency by using centrifugal force, literally pulling the dirt out: Vanes gave a violent swirling motion to the incoming air and threw the dust to the outside, where it collected in a special chamber. That proved to be no answer.

The next step (around 1930) was to put metallic or fiber mesh in a removable cartridge and soak it in oil. The dust clung to the oil much more readily than it would to dry, bare metal, and the filtering efficiency rose to around 90 per cent—with less air restriction than in the old gauze type. This "oil-wetted" type of filter is still standard equipment on about half of our cars. Cleaning is simple: just a matter of removing the cartridge, soaking it up and down in some kerosene or

A This is a typical replaceable filter element after 5000 miles of average driving. It has picked up almost two pounds of sludge and dirt from the circulating oil.

B This filter replacement cartridge is used in many of the units offered by American filter manufacturers. It will replace the dirt-clogged filter shown in (A).

C The micron-type filter is becoming more and more popular. Oil from pump enters at (1), is forced through the special element (2); dirt remains in element and oil is returned to engine circulation at (3).

D The shunt-type, or partial-flow, oil filter used on current models. Engine oil enters top side of filter (2) where normal oil pressure forces it through the element. All dirt, water, or other foreign material is deposited on the outside of the filter element, or in one of its many folds (3). Oil then builds up inside the center tube, which is permanently sealed at each end (1), and flows out the bottom of the filter to return to the engine.

E The most recent development in oil filters is the full-flow type. Attached directly to the oil gallery of the engine block (1) without external lines, it is coming into more and more commercial usage. The oil inlet (2) routes dirty oil from the pump to the special paper filtering unit (3), which is held firmly in place by a double-gasketed coil spring (4). The outer housing is held on by a center stud (5), which can be removed easily for

cartridge replacement. The name "full-flow" is further expressed in this type by use of a ball-check valve (6) which opens under pressure built up by a dirty or clogged filter element. This permits oil to continue its normal flow to the engine until the element can be replaced. The oil outlet (7) returns clean oil (or dirty oil, if the filter is clogged) to the oil gallery directly through the engine block.

F A popular-make combination air cleaner and silencer with oil bath. Dusty air enters unit (1) and is thrown down into oil reservoir. Remaining dirt is removed by circulation through oil-wetted mesh. Silencing is done by inter-connected chambers (5) which remove low and intermediate roar of intake air. A special sound-absorbing felt at the top of the unit (2) removes air "hiss." Engine noise is muffled by two lower chambers (4) as it enters the silencing circuit through the outer passage (3) at carburetor attachment point.

G A typical air cleaner and silencer without oil-bath air-filtering features. The outside air enters at (1) and dirt is trapped in oil-wetted mesh, as the air flows through the filter area and down the center of the cleaner (6). Air "hiss" is removed by acoustical felt in the cover (2) and by chamber "B." High-pitched roar is subdued in chambers "C" and "D," which also eliminate engine noise entering through the double-tube attaching flange.

HI-COMPRESSION

FOR ALL CARS AT LOW COST

WITH NEW PEP & GAS ECONOMY!

Boost the Compression of Your Engine 1 Point by Installing ...

COMPRESSION-RISER HEAD GASKETS

Famous new Alquist SOLID-COPPER Head Gaskets are guaranteed to increase horsepower, pickup & gas mileage! Users report from 1 to 5 extra miles per gallon! Praised by leading magazines—used the world over! Special thin .005-.020" gaskets increase compression up to 8:1 or higher—thus are equivalent to milled or custom heads! Genuine Solid-Copper (not laminated or shim). Guaranteed Corrosion Resistant, Blowout Proof, Easy to Install!

FOR ANY MAKE CAR, TRUCK, RACER, ETC.
Ford V-8s & Mercs, Set, \$6.95 (Special Racing Set \$6.95); All other V-8 Cars, Set, \$7.75; All 8 cyl. inline Cars, \$8.95; All 4 & 6 Cyl. Cars, \$6.95.

DEALERS WANTED

TWIN TONE DUAL SETS

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gasoline, drying it out, and resoaking it in oil. This type is low in cost, compact, and keeps airflow at a maximum.

But it has limited efficiency at best, and as the oil loads up with dirt and dries out, its efficiency drops. Then came the well-known "oil-bath" filter, developed in the mid-Thirties. In this deal, incoming air is deflected to strike a pool of oil in the bottom of the casing before being drawn up into the mesh filter cartridge. Part of the dirt clings to the oil surface at that point; then, at high air velocity, drops of oil are picked up and brought into the cartridge to keep it wet. When the car stops, oil and dirt drain back into the sump. Very neat when you think of it. Overall efficiency of the average oil-bath air filter is about 94 per cent. Aside from high filtering power, this type has the further advantage of being able to hold an enormous amount of dirt in the sump before losing any efficiency—and cleaning is merely a matter of washing the cartridge and renewing the sump oil, similar to the oil-wetted type. The oil-bath filter is a must in very dusty regions, unless you want to clean the thing out every day. All current American cars have this type either as standard equipment or available as an option; when the car is scheduled for one of the Western or Southern states, an oil-bath filter is generally installed at the factory.

In just the last couple of years, Fram has developed a new type of renewable carburetor or air filter that eclipses the efficiency of even the oil-bath type. It consists of a special cartridge with a very fine filtering medium of fiberboard that operates dry. It's guaranteed to remove 99 per cent of the solid impurities from air passing through it! When it gets loaded up, you throw the cartridge away and install a new one. Studebaker now uses it as standard equipment, and replacement cartridges are available for all types of air cleaners (in the case of the oil-bath you remove the oil, of course). Main disadvantage here is that a new cartridge costs two bucks, and you're supposed to renew it every six months or so under average conditions; the new Fram filter would be an expense—though possibly a well-justified one—in very dusty climates. At any rate, it could be a significant factor in increasing the life of your engine. One series of tests showed a reduction of over 80 per cent in top cylinder and ring wear using a renewable dry filter in place of a conventional oil-bath type.

Crankcase-ventilating air filters are all of the oil-wetted mesh cartridge type, built as a part of the oil filler cap or ventilating outlet pipe. You clean them in kerosene and redip in oil when you clean the main air filter.

Now how do we go about getting the most service out of our air filters? Actually, air filters are among the most neglected parts on the American automobile. Millions of motorists all but forget them from the time they buy their car—and some garage men are not too careful about regular maintenance. Don't neglect it; it will kill your engine. Not only that, but a dirt-clogged filter will foul up the metering of your carburetor and cause excessive fuel consumption.

Under average conditions—and get that word *average*—the oil-wetted type of filter

should be cleaned every 2000 miles, and the oil-bath type every 4000. If you operate your car under unusually dusty conditions, as in dry regions or on back roads, check your cleaner more often; once a week in some cases. It'll load up at an unbelievable rate sometimes. In the case of the oil-bath type, the oil in the sump also becomes thicker as it accumulates dirt, and oil consistency is a good indicator of filter condition. When you replace the oil use SAE grade 20 in winter, and SAE 40 or 50 for warm weather; too light or too heavy an oil here reduces the efficiency.

In some cases, it may be practical to convert your present carburetor air filter to the new renewable-element type. If you want to protect your engine at all costs—meaning possibly two dollars a month under dusty conditions—this is the answer. For more normal conditions, it will give superior protection at a more reasonable cost.

A word about the small filters designed for hot rods and multi-carb installations where filter size is a limiting factor: These jobs use a copper mesh operating dry; they are somewhat less efficient than regular Detroit types, and whereas they do a job where they're needed, don't throw them on just for looks if you want maximum protection.

Whatever you do, though, watch those air filters closely!

Gasoline Filters. Gas filters are really just a means to delay the inevitable. Carburetors are bound to get loaded up eventually just from certain constituents in the gasoline itself that can't be considered impurities (dye, bromine, etc.). Gas filters are intended only to keep the bigger stuff out of the carb. All cars have a filter mounted on the intake side of the fuel pump (a very fine wire screen or porous composition material in conjunction with a sediment bowl). Impurities or any water in the gasoline deposit out in the bottom of the bowl, which should be removed and cleaned at least twice a year. Some of the more expensive cars also feature auxiliary fuel filters either on the gas tank or at the carb inlet; these are of the direct filtering type (the gas passes through an element) and merely supplement the work of the regular pump filter. They can be fitted on any car.

Oil Filtration. Truly astonishing reductions in engine wear and deposit formation are possible with efficient crankcase oil filtration. One test showed a reduction of over 50 per cent in cylinder, ring, and bearing wear using a conventional automotive oil filter setup in place of the old open lubrication system. That can mean longer engine life for you—if you work it right.

Basically, there are three general types of oil filter installations: the full-flow type, the shunt type, and the partial-flow or bypass type. In the full-flow layout, all the oil from the pump is routed through the filter before going to the bearings. It takes a large, relatively porous filter element with low filtering efficiency to handle the large volume flow; when the element becomes plugged with dirt the back pressure opens a valve and bypasses the oil around the filter (and no filtering takes place, of course).

The shunt type of installation is set up like the full-flow except that a special valve

in the filter bypasses part of the oil direct to the bearings at all times, the amount depending on the internal resistance of the filter. This assures an ample supply of oil to the rubbing parts when internal filter resistance is moderate (such as with cool oil or a partially plugged element), as well as making possible a finer filtering medium.

The partial-flow type of installation is entirely different. Here the line to the filter just taps into the pressure line from the pump to the bearings, so that only "overflow"—or about 10 per cent of the total oil flow—actually passes through the filter in one cycle. From here the oil goes back to the sump, not direct to the bearings. Obviously, with a smaller volume of oil to handle, the partial-flow system can use a much finer filtering medium and get smaller particles out of the oil. But at the same time it's filtering only a small part of the oil (though, of course, all of it would pass through the filter every few minutes).

This question of the superiority of the full-flow (or shunt) or partial-flow filter layout—that is, whether it's better to filter a lot of the oil a little or a little of the oil a lot—is still up in the air these days. Certain laboratory tests seem to point in both directions. For instance, one series of tests under high-output conditions showed less ring and cylinder bore wear with the partial-flow layout, but less bearing wear with the full-flow. Another authority goes all-out for the full-flow setup. American auto manufacturers are about equally divided on the question. At any rate, the benefits of some sort of filtering system for the crankcase oil are unquestioned, and practically all Detroit models now have a filter as standard equipment.

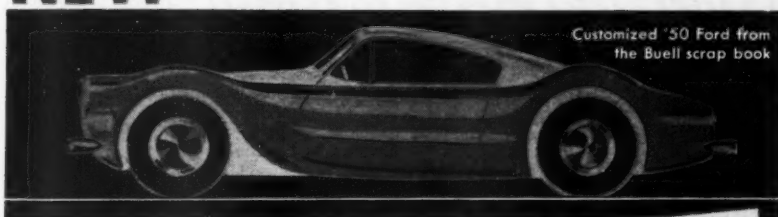
The filtering medium for automotive units is generally cotton waste, felt mesh, or treated filter paper (some industrial filters use a very efficient granulated clay medium, but it's pretty costly for car use). Just recently an accessory house has come out with a sintered bronze element—that is, microscopic bronze pellets are fused into a porous filter wall; it's said to be very efficient and is guaranteed for 10 years (with periodic cleaning, of course). These various filtering elements are set up in a compact cartridge that fits in the casing so as to be readily removable.

Now, of course, to get the most out of your oil-filtering system, like anything else, you've got to maintain it—and that means regular renewal of the cartridge. A full-flow filter will always load up faster than the partial-flow type, so watch it closely. The generally recommended mileage intervals for oil filter service, under average conditions, are about every 4000 miles for the full-flow type and each 8000 for the partial-flow. Under unusually dusty conditions or for a lot of stop-and-go driving (especially in cold weather) check the filter more often.

With all "regular" grades of oil and some premium grades, you can tell the condition of your filter by the appearance of the oil in the crankcase. It should keep it really clean to the eye and it should remain close to its original color; when it starts to soot

(Continued on page 82)

NEW AIR HORNS WITH VOLUME CONTROL

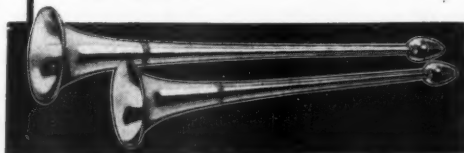


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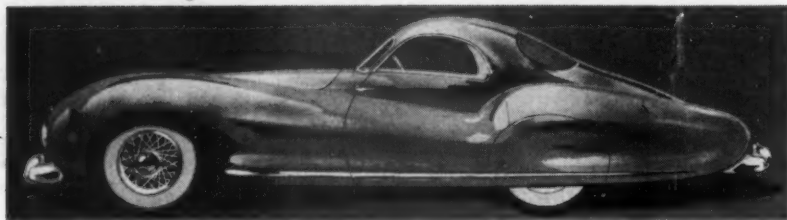
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All this and more in the January issue of the great new pocket-size "Show-How" magazine,

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Strictly One of a Kind (continued from page 31)



Original Saoutchik rendering of a coupe intended for a 1946 French Talbot chassis

Saoutchik car for each situation, à la the King of Siam's fabulous order.)

Jacques claims to be the originator of the convertible design and in 1928 he even created a car which was a limousine when closed and could be changed into an open sport convertible through an ingenious system of folding top and side supports.

Saoutchik Senior chuckles over a fad he started in the 1909-10 period, when his customers went for detachable bodies that could be removed from a chassis and replaced by a second design. In those days many Saoutchik clients ordered two body designs for each car, and one Spanish marquis even had two chassis and four bodies, all interchangeable, making a total of eight different car combinations. Customers would drive into Saoutchik's garage (where the spare bodies were stored like meat in a freezer locker) and in the same breath modern motorists say "Change the oil," yesterday's sports would order "Change the body" and three hours later would drive out again in what seemed a completely different car. That was the era when a chassis cost about four times more than a Saoutchik body. Now the relationship has just about reversed.

In 1929, when Pierce-Arrow merged with Studebaker, Jacques Saoutchik was asked to come to the U.S. and design the Studebaker. It was during that year and the early Thirties

that the house of Saoutchik reached its financial heyday, for they designed and built approximately 70 cars a year (at \$25,000 each) for American customers alone. Occasionally Jacques sees some of these well-preserved relics in the movies—in fact, "Sunset Boulevard" featured a Saoutchik auto. Commented Jacques: "It was like seeing an old friend I'd lost track of."

Just how special can a Saoutchik car get? Actually there is no limit, since many of their clients can afford not only the epitome in elegance as far as overall design is concerned, but also the gamut in additional accessories. Quite a number request special luggage to match the upholstery.

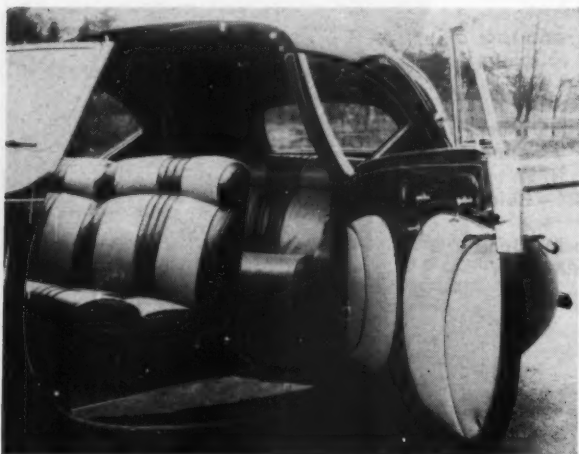
An order may be vague—merely "Saoutchik, I want a car, something special. Never mind the cost," or very definite: "I want a Mercedes town convertible—here's a rough sketch—and I don't want to pay more than \$15,000. Let me see your samples."

One of their best present-day customers is King Ibn Saud of Saudi-Arabia, who owns eight Saoutchik automobiles (costing \$25,000 each): two Talbots, two Rolls-Royces, two Daimlers, and two Cadillacs. Since Ibn Saud is an invalid, Saoutchik has designed a special automatic seat which swings out at the press of a button. To get into the car, the Arabian monarch merely sits down on the seat outside the car and is automatically propelled in-

side. The seat can also be converted easily into a bed, and this particular Cad also contains a toilet, refrigerator, sink, and hot and cold running water, as well as a two-way radio system with a 100-mile radius so the ruler can communicate with his palaces while traveling on the desert.

Presently being built in the establishment is a Cadillac for one of Ibn Saud's sons (pages 30 and 31). The original order on this was: "Make a long convertible—big enough for seven or eight people." Saoutchik knows this particular royal line well enough to realize that by "long" they mean just that, so he chose the largest possible chassis—a Cadillac meant for an ambulance. From the top of the front fenders a straight line leads to the rear without interruption until it flows smoothly downward without any indication of fins. To achieve this line the hood was lowered to practically air-cleaner height, which in turn allowed the whole body line to be dropped. As Saoutchik put it, it was a question of taking a super-long automobile and making every line in the design smooth, straight, and long to prevent an impression of the car overpowering the occupant. The conventional taillights were replaced by round bullet-type ones to follow the design of the rear bumpers. Intended to be a chauffeur-driven job, the car has a partition which can be lowered electrically. The windows and top are also actuated by independent electric motors, which Saoutchik prefers to the hydraulic kind. The rear seat is extra large, fully adjustable to every conceivable position, and folds into a bed in case the prince feels like traveling horizontally. The color scheme of the car is a good example of a Saoutchik touch, for the automobile will be the exact shade of the Arabian flag—emerald green—plus a harmonizing ivory tone.

Saoutchik is also presently engaged in doing special body work for Pegaso, and already has completed 34 designs for the Spanish firm, which ships the chassis to Paris. For these Pierre has devised a special frame of triangular steel girders, drilled for additional lightness. Around the frame, sheet dural is rolled and rubber cushioned to pre-



On a conservative car like the Rolls-Royce, color may run riot while the actual design is like fine antique furniture.



The Delahaye on page 30 looks like this inside. Like most European coachbuilders, Saoutchik emphasizes fine upholstery.

vent vibration. Saoutchik says this construction technique saves 20 per cent on body weight when compared to steel tubing, with no loss in safety. The most recent Pegaso body planned by Saoutchik will have a curved windshield; when a button is pushed, it disappears—cornerposts and all.

While I was in Saoutchik's designing room, a Texan was ushered into Pierre's adjoining office and shown a design that had been prepared for a Cadillac chassis at his order.

When told the price he whistled. "Why, that's crazy! For that fancy price I kin get me two Cadillacs!"

"Of course you can," agreed Pierre smoothly. "But then you have to think of your reputation."

"What d'ya mean?"

"Well, you drive a new Cadillac every year, don't you? But you still are driving the same car your friends have. However, if you put a customized body by Saoutchik on a Cadillac chassis, then you will own a car so outstanding—so elegant—you will be a personality, and you can proudly drive the same Cadillac for longer than three years and still impress people. When you finally do sell it, you will get a much better price, for there will be no other like it in the whole world!"

The Texan was sold—and so was I. Now it's just a matter of waiting until my oil well comes in.

—Ernest E. Reshovsky

Statement of Ownership

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF MOTOR TREND MAGAZINE, published monthly at Los Angeles, California for October 1st, 1953.

1. The names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher: Robert E. Petersen, 8340 De Longpre Ave., Los Angeles 46, Calif.

Editor: Walter A. Woran, 447 N. Van Ness Ave., Los Angeles 28, Calif.

Managing editor: James E. Potter, 12201 Malone St., Los Angeles 34, Calif.

Business manager: Theodore A. Johnson, 12640 Montana Ave., Los Angeles 49, Calif.

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

THEODORE A. JOHNSON

Business Manager

Sworn to and subscribed before me this 1st day of October, 1953.

PHYLLIS M. AVEDON

Notary Public

(SEAL) (My commission expires August 20, 1954.)

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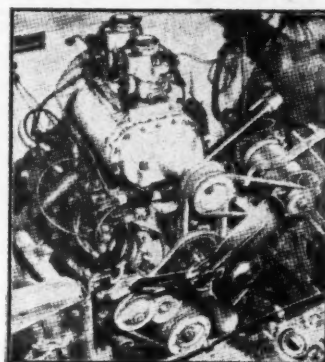
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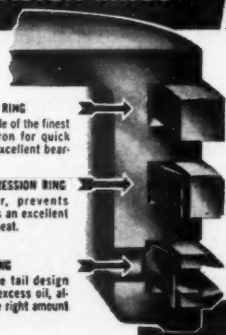
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The Milk Bug Bite

(Continued from page 29)

to work selling Lincolns and, a short time after, the newly introduced Mercurys. Bob Estes settled down for a long-time career selling cars.

But in April of 1942 the Army required his services and sent him to the Canal Zone, where he supervised maintenance crews for Army mechanized construction equipment. He was discharged late in 1945 and began to cast about for his own Lincoln-Mercury dealership in Southern California. In 1946 he opened his agency in Inglewood and started selling new Lincolns and Mercurys with one speculative eye on their powerplants, the other on various speed events.

He experimented.

In 1948 Bill Taylor on an Estes entry won the Pacific Coast Stock Car Championship. Inspired by that, Bob Estes went out and bought the famous DO Cragar and another track job powered by a DO Hal on a Ford B block. Estes took no prizes with these cars, so he soon abandoned the modified-stock "fours" in favor of V-8s. With two of his men, Jack Dulin and Jud Phillips, Estes turned out the first complete race car to come from the Inglewood stable. It was powered with a 310-cubic inch Merc engine. Driver Joe James gave up hot rods to push this new car through the Midwestern and Eastern outlaw circuits against such competition as 300-plus Offys.

"Milking" the Merc engine, Estes designed and produced an Indianapolis-bound car with a 268-inch, Ardun-equipped powerplant that excited Ford officials who saw it at the Speedway. At the 1950 event, the Ardun-Merc roared through its qualifying laps at an average of 124.17 mph. Passed by in favor of faster cars, Number 82 was appointed an Alternate Starter but did not run. It competed at Pikes Peak later that year but spun out near the end of the course.

In the three years since then, Estes' activities have increased to a point where his name appears in nearly every automotive competition event in this country, plus the Mexican Road Race. A few years ago he bought the sprint car "City of Glendale," and reworked it as the "Bob Estes Special." Driver Joe James promptly took it out and qualified for every championship race during the remainder of that season. Simultaneously, Estes was building a new 220-inch Meyer-Drake sprint car, dubbed the "Dale Estes Special" for Bob's new son. James pushed the little car through Midwestern events that year, finishing third in point standing.

In 1952 a new Estes car placed 12th at Indy despite the fact that driver Rigsby ran the last 225 miles without brakes. In the 1953 classic, Estes' Indy car spun into the wall about 200 miles from the start. The car, a four-cylinder Offy, had qualified well at 136.86 mph.

Estes' car in the 1950 Mobilgas Economy Run finished third in its class. With that experience behind him and with actual running experience to guide future plans, his 1951 entry (a Lincoln) took the overall

Sweepstakes. He repeated his victory in 1952 with a Mercury. His 1953 entry placed second in its class.

That same Estes momentum has made itself felt in the Pan-American Road Race. In the first annual event, Estes entered a Lincoln Hydra-Matic coupe and driver Johnny Mantz did some fancy throttle-stomping to put the car way out in front from Texas to Mexico City. In the last lap, Mantz shoved the Lincoln toward the finish line although knife-edged rocks and crumbled pavement had ripped the tires off all four wheels. The car finished in ninth place on rims so flattened that it had a bare minimum of road clearance. On his return trip Mantz drove from Mexico City to Los Angeles in a record-shattering 33 hours, 49 minutes.

Estes stayed out of the 1951 Mexican event but approved the 1952 rules which permitted different competitions for stock and sport classes. It was the year Lincoln swept the first four positions. Estes' car finished second in that group, 31 seconds behind the leader because of a last-minute tire change. As MOTOR TREND went to press, Clay Smith and Bill Stroppe were putting the finishing touches on Estes' 1953 entry, a '53 Lincoln Capri coupe with a stock engine. They were adding the enlarged fuel tanks, swaybar, heavy-duty shocks, and roll-bar allowed in the International Standard Class for production cars over 250-cubic inches displacement. Johnny Mantz was again to drive.

During preparations for the 1952 Pan-American event, Bob Estes heard that the Hill-Davis streamliner's builders wanted to run the car for international records at Bonneville. Noting that it was powered by a Merc engine, Estes offered financial backing for the assaults. The performance of that car was the inspiration for the AAA Contest Board's attendance at the Salt Flats this year.

All of Estes' track jobs, including chassis, have been built at his Inglewood lot. Some day, this auto sportsman wants to go into limited production on a sports car engine. He has a small engineering corporation located in Culver City, Calif., currently devoted to aircraft work but eventually slated for production of that engine.

And since sports car racing is the one thing Estes hasn't tried, what does he think of it? He likes it fine. He believes that road racing and airport racing will increase in stature. His personal choice for an out-and-out competition sports car would be a Kurtis with a modified Merc engine. "But," he warns, "sports car racing will never replace the classics. Indy will always be a great event."

Estes is a quiet man with the wide, boyish eyes of the lad who bought the "milk money" Model T Ford. He has the hands of the mechanical dreamer, the soft voice of a creator. The only material indications of his status in the motor world are the antique-car cuff links on his immaculate white shirt and the faded blue denim motoring cap slung

carelessly on the clothes tree in his office. His wide wooden desk has two photographs on top. One is of Dale, the three-and-a-half-year old who can already identify every car on the street by make. The other is of his wife, Alma, who goes willingly along with Bob's interests and activities . . . but shies every now and then when she encounters tragedies in motoring events.

Estes admits that Alma made him promise one thing when Dale was born. He had to swear that Dale would never get milk money. He will, instead, have a charge account at the school cafeteria.

—Ivan T. Galanoy

Sports Cars

(Continued from page 45)

"sports car": the Buick Wildcat, the Cadillac Eldorado and LeMans, the Kaiser DKF-161, the Olds Starfire, and the Packard Caribbean. All good cars, with the look of sports cars, and in some instances, the feel of one, but since no one would be so foolhardy as to enter them in competition (particularly against Allards, Ferraris, and Jaguars) they cannot be seriously considered as true sports cars. For this reason, we prefer to call them, and not disparagingly so, "boulevard sports cars." It's possible to quibble with this particular definition, but the intention of the term is to segregate the "true sports car" from the car that has a sports car appearance, is used only on the road, and never in competition.

During this same stage of evolution, and in some cases, slightly before, Detroit again experimented with "laboratories on wheels." It may have been coincidental that such cars came out somewhat before their versions of "sports cars" appeared on the scene, but nevertheless some of the later cars had features adopted from these experiments (as did their standard production models). In any event, cars such as General Motors' LeSabre, Buick's XP-300, and Ford's X-100 and XL-500 are one step in the sports car evolution. That they are also a means of testing public opinion is a distinct possibility.

Well then, if none of these cars are true sports cars, what is a true sports car? To answer this hypothetical question in the easiest possible manner it's best to list some of the better-known ones: Allard, Austin Healey 100, Ferrari, Jaguar XK-120, MG, and Singer. All of these cars have one thing in common—they can be driven to an event, compete in it, and with luck, be driven home. They corner flat. They have better-than-average acceleration (or are capable of it). They have quick steering. They have very dependable brakes. The fact of being open or closed, having two seats and/or no luggage space in no way makes a car a sports car. The Chevy Corvette could conceivably be grouped in this classification, for aside from the relatively minor drawback of its automatic transmission, it has all the other requisites. In fact, it is highly conceivable that this particular car could be the first American-type sports car, intended for our peculiar conditions, which are unlike those of the English and Europeans.

Now another intriguing development is taking place in foreign sports cars. Whereas all were previously being tailored for the general market, some are now built strictly for competition. Notable examples of this are the Jaguar XK-120C models, the Osca, and special versions of Allard, Ferrari, and Siata. There are many others, all specials, that are perfect for the rigid requirements of the person who competes in road races, hillclimbs and events of similar nature. However, they are not suitable for transportation to and from work, or even for a Sunday's drive.

Another interesting aspect in the overall picture is the effect sports car design and styling may be making on the standard stock car. Possible forerunners of future stock

sedans and coupes are the now-radical Hudson Italia and the Italian-styled Chrysler cars. Such cars may not only be forerunners of complete cars, but they too may be used as ways of testing certain features, as in the case of the "laboratories on wheels." This is just one way of testing the public's appetite. If it's whetted, there will be more to come.

MOTOR TREND wishes to thank the Henry Ford Museum, Dearborn, Mich. for most of the photos used with this article. Other photo sources were: Felix Zelenka (4); Bill Harkins (5); J. V. Neff (9); Lester Nehamkin (12); Marshall Simonsen (15); Robinson Studio (16); Tom Medley (19); Jack Campbell (20); Günther Molter (21).

—Pete Molson

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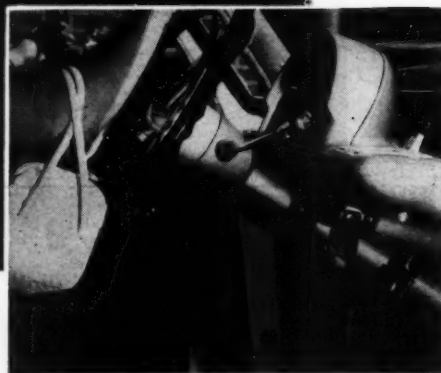
Don't let your car be a Criminal

Foiling would-be car
thieves is simple
enough. Are you
observing the rules?

MOST STOLEN CARS become involved in crimes; many become tools of destruction, and some figure in fatal accidents. Will your car become one of these "criminal cars"? You can become a not-too-innocent partner in crime just by leaving your car parked with the doors unlocked. You don't even have to leave the keys in the ignition to provide temptation (and transportation) for a car thief.

The FBI and police chiefs throughout the country are using the slogan "Don't Let Your Car Become a Criminal" as the theme of a current drive to cut down the high rate of auto thefts. You can do your part by making it tougher for a criminal to make off with your car. Here's an added tip: Don't leave valuables in plain view inside your car; even if the doors are locked, a thief won't mind smashing a car window to get at a camera or a good-looking topcoat.

Photos courtesy
Ford Motor Company



That fellow standing near the darkened parking lot is just waiting for a ride—in your car! Thanks to the "keys of crime" left dangling in the switch, this car may be stolen 30 seconds after thoughtless driver leaves



The car is disguised at an underworld garage, where the plates are changed and new paint is applied. Careless motorist's car is now ready for a new role as criminal's helper



The usual tale of woe: "But officer, I only left the car for a minute." His car is probably far away by now, maybe rolled. Perhaps it has killed someone.

MT RESEARCH



TECHNICAL SERVICE

By Fred Bodley

Please send a self-addressed, stamped envelope if you want to receive a personal answer. There is no charge for this service. Only selected questions are printed for the interest of readers.

QUESTION—I would like to have the answers to the following questions regarding braking ability as shown by your car tests:

1. Your tests indicate generally that stopping distance doubles for each increase of 15 mph. Would this hold good for speeds over 60 mph, i.e., 75, 90 and 105 mph?

2. Is the pressure applied to the brake pedal measured with a gauge?

3. Is full-force pressure applied to the pedal or is the pressure varied to get the shortest possible stop?

4. In making brake tests, are tests made to find the stopping distance at maximum car speed?

5. Would it be safe for a driver who has never been required to make a stop at maximum speed to try such stops without practice or proper instruction? Emory E. Phelps, Bridgeport, Conn.

ANSWER—1. The doubling of braking distance for each 15-mph increase in car speed holds fairly well through 60 mph. Above this speed, say 75, 90, and 105 mph, the car becomes more and more unstable as the speed increases. No brakes are perfect nor is any road surface perfectly smooth. So when brakes are applied hard, there may be a tendency for one wheel to lock up before another. In so doing the car will change its direction. As the speed increases it becomes more and more difficult to hold a straight course. Consequently, to keep from going on your head, you have to let up on the brake pedal to regain control of the car. These conditions make higher speed stops increasingly longer.

2. We do use a brake pedal pressure gauge when making brake checks.

3. If the brakes hold evenly enough to allow full-pedal pressure and still keep the car in a reasonably straight line with some steering wheel correction, full-pedal pressure is used in all our brake checks.

4. We do not make any brake checks at speeds above 60 mph. At this speed they are often thrilling enough.

5. I would not advise anyone to make panic stops at 60 mph (probably an indicated 67 on your speedometer). Any inequality in the brakes is greatly magnified at higher speeds. A wide paved airport strip clear of traffic is the best place; then if you go broadside, no one will be hurt. Panic stops at 60 mph are extremely hard

on tires. Locked wheels, from 60 mph down to a dead stop, develop flat spots in the tire tread very quickly. The ideal brake application is to apply the brakes hard enough so that the tire tread is exerting its maximum friction against the road surface without sliding or locking. Even this is debatable, as one of the leading car manufacturers claims that slamming on the brakes so that all four wheels are locked will bring the car to a stop in the shortest distance. The aforementioned ideal condition is almost impossible to achieve due to inequality of even the best brakes and roughness of road surfaces. Also, when a real emergency arises, the average driver will usually apply full force, not having time or experience with which to feel out the brakes for maximum effect.

QUESTION—My wife and I have an opportunity to buy a 1952 MG. As we have had no experience with this type of car we would like to know:

1. How many miles can be expected from the MG engine before an overhaul is necessary?

2. How many years of service can be expected, provided it receives excellent care and maintenance? Lee H. Walker, Tullahoma, Tenn.

ANSWER—This type of question is difficult to answer due to the number of variables involved, but I will stick my neck out:

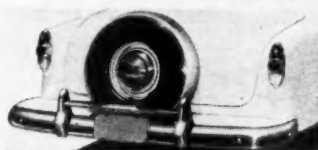
1. The MG has a fairly fast turning little engine, and usually requires re-ringing between 20,000 and 30,000 miles.

2. There are a number of MGs running around in this country which are five years old and, from their condition, the owners can expect many more miles of service with care and normal maintenance.

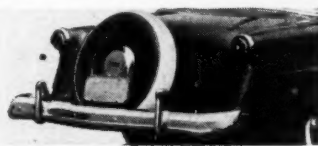
QUESTION—I would like to change the rear axle gear ratio of my stock '53 MG-TD from 5.12 to 3.55:1. The high rpm at only 65 mph worries me. I would not mind the decrease in acceleration and need for more gear changing at lower speeds if I can decrease rpm at high speeds. Leaving the engine stock, will there be any more disadvantages than the above mentioned? Ken R. Warrick, Austin, Texas.

ANSWER—I would not advise installing a 3.55:1 rear axle gear in your stock MG. True, it will cut down the rpm, but the engine will always be lugging which is harder on the MG engine than revving it up.

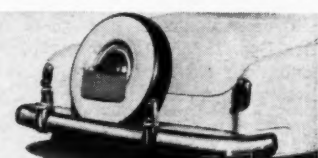
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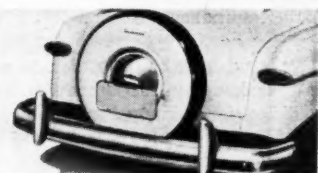
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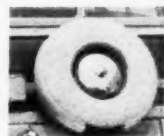
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2 IT MAY NOT BE a clothing item, but the Visorette will dress up your car. Clamped onto the visor, this accessory has a zippered pocket for maps, gloves, etc. Note pad and golden pencil, glasses holder included. In top-grain saddle leather. Initialled, gift-wrapped. Price, \$5.00, postpaid.

3 JUST THE THING for football fans, this virgin wool blanket from the famed Pendleton Woolen Mills in Oregon will keep you warm and make that bleacher seat soft as a cloud. The Highland Quilt-Block pattern shown here measures 52 by 70 inches. The handy carrying case can be transformed in a jiffy into an air-filled cushion. The carrying strap is completely adjustable for shoulder-length use. Blanket and case, \$13.50.

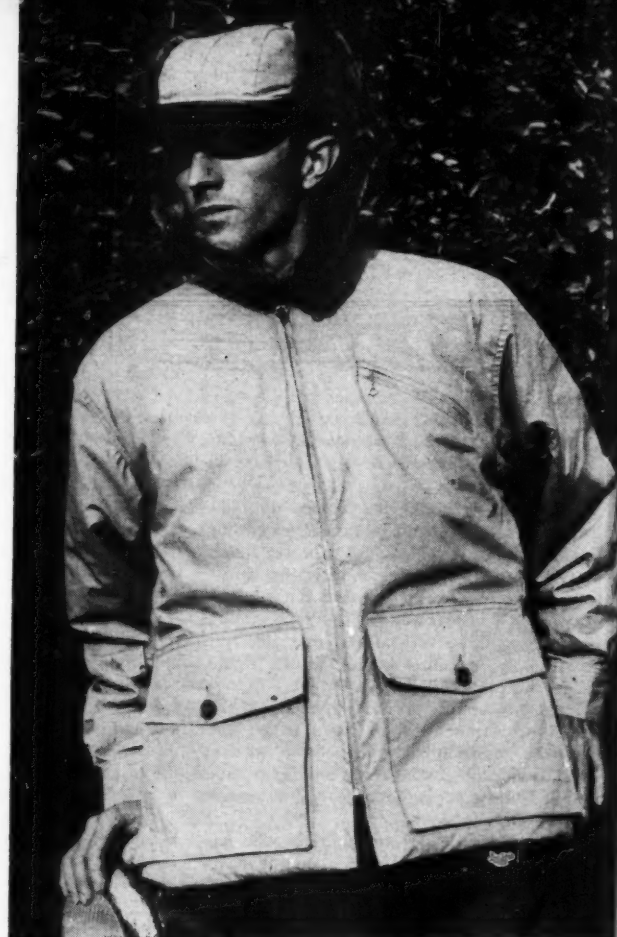
4 PERFECT BEDTIME companions—the latest copy of **MOTOR TREND** and Autorama "P.J.s" by Reis! Gaily imprinted with everything from Model Ts to Stutz Bearcats, the pattern runs wild over these full cut, notched-collar pajamas. Sanforized. Elastic waistband. In sizes A, B, C, and D, \$5.00.

Photos by
Bill Southworth



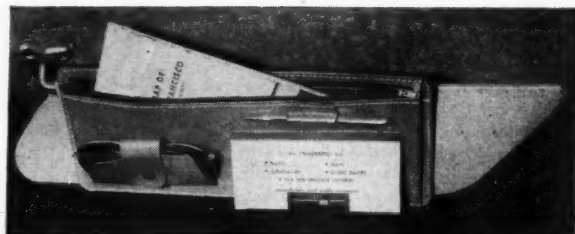
3

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1

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2

COURTESY BON VOYAGE BAZAAR, BEVERLY HILLS, CALIF.



4

COURTESY ROBERT REIS & COMPANY, NEW YORK, N. Y.

New Light on the Moon

(Continued from page 27)

"maximum power from engine to wheels, low center of gravity with increased road clearance, freedom from skidding, economy in tires..." Then Camden got carried away:

"The principle of the front-drive puts life and energy into the front wheels. It gains increased tractive ability, which permits a firmer grip upon the road surface, gives highly increased power in hill-climbing and upon muddy or sandy roads. In operating on sharp curves or upon slippery roads the possibility of skidding is reduced to a minimum."

When New Era came along as a new exponent of front drive some 10 years later, it made other sorts of claims. Its Ruxtons, it said, were in production in an unnamed private factory pending construction of two plants, one in Cleveland, and one in St. Louis. Actually it seems to have been negotiating with several established automotive manufacturers to have the cars built on a royalty basis at their plants.

The company announced that it was a closed corporation with \$5 million in preferred stock and 100,000 shares of common stock—scarcely a poverty-ridden statement.

Designer of the pilot model Ruxton was W. J. Muller. The car was only 60 inches high, with a 130-inch wheelbase. Its engine was an L-head, eight-cylinder Continental (three-inch bore and 4¾-inch stroke) equipped with Nelson Bohnalite pistons. The transmission had three speeds but was otherwise unique. In order to reduce overall length of the powerplant and differential, the transmission was actually built in two sections and placed directly over the differential. It resembled a conventional transmission cut in two vertically between the two sliding gears, with a worm gear inserted at that point. The splined rear end of the main shaft carried the gear that engaged high and second. The front end of the main shaft, also splined, held the gear that provided low and reverse. Because of the construction, the countershaft was placed in the same horizontal plane as the main shaft rather than below it in the conventional manner.

Josef Urban, a well-known architect and color expert, designed the arresting color scheme of the pilot model. Interior fittings reportedly were designed by Cartier.

There is confusion about where the pilot body was actually made, and today there are three versions. The first and most dubious one is that the body was made by Budd; when one considers the terrific cost of dies, this version is doubtful. A second story is that Rauch and Lang made the body. This is questionable, but they did make several of the roadster bodies in 1930. The third version, which is most likely, has it that the body was stamped from Wolseley dies in England, with minor custom modifications made here in the United States. Regardless of just what comprised this prototype, the end result was striking.

The pilot sedan was at least 10 inches lower than the average car. It offered a smooth ride for its day. The novel absence of runningboards permitted passengers to



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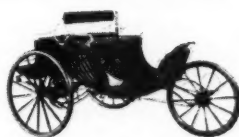
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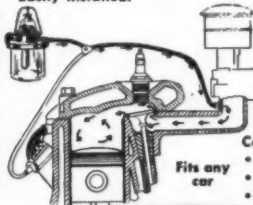


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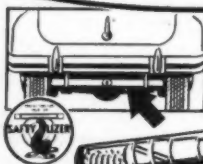
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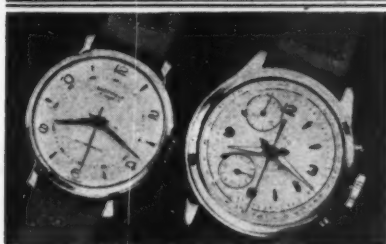
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Sixty-eight

step directly from the car to the ground. The cowl-mounted shifting lever was at last out of the middle of the floor.

But despite the initial promise of 500 of the five-passenger sedans ready for delivery by July 1928, only a pilot model was available in April of 1929, when New Era again was in the news. Basically the announcement was the same as the year before. The car listed for \$3200 and the overall weight was to be 2500 pounds. At that time the designers apparently had in mind an aluminum-bodied production model, for the steel prototype weighed more than 3500 pounds.

Early in June, A. M. Andrews, New Era's president, demonstrated the pilot model at the Columbia Yacht Club in New York. Simultaneously another pilot model with a Continental L-head of slightly shortened stroke (4 3/4 inches) was displayed at B. H. Dyas' Hollywood department store.

At the June demonstration, Fred Gardner said, "Gardner Motor Company will produce Ruxton cars at the Gardner plant in St. Louis."

On August 31 a new model Ruxton, announced as the production model, appeared. The car looked to be the same old job, altered somewhat, now having a radiator filler cap sunk entirely below the level of the radiator shell, with a bayonet release. The price of this "production" model had been upped to \$4500. The turning radius had been improved to 19 feet. Weight of the car was 4000 pounds, not the promised 2500.

On October 23 the first Ruxton roadster was displayed at the Grand Central Palace National Business Show. Made at the Gardner plant, it carried a price tag of \$4600.

Rumors were still rife that Peerless and Hupmobile would get into the deal, but the Hupp Motor Car Corporation denied that the Ruxton would be produced at its newly purchased Chandler plant. Several months of relative silence passed, during which time Cord beat Ruxton to the draw with its L-29, and the Bucciali brothers of Paris, who had been at work on a front-wheel-drive design since 1925, introduced their own model which boasted four-wheel independent suspension and was powered by a six-cylinder supercharged Mercedes SS.

Toward the end of November, Carl Burst of Moon got into the New Era-Ruxton act for the first time. He announced that Moon would take over the production of Ruxton from Gardner. Helm Walker, Moon's sales manager, stated that Moon had purchased the Ruxton patents and acquired all the plant equipment in the deal. What equipment was never made clear.

At that time, Moon was producing the Windsor White Prince, a straight eight with four forward speeds. The White Prince was named for the popular Prince of Wales, now Duke of Windsor, and the car was a sleek (for that period) sporty-looking job that sold for \$1695 for the cheapest 8-85 model, and well over \$2400 for the 8-92 series. Several custom-bodied White Prince Royal convertibles sold at over the \$4000 mark.

The Windsor cars had been introduced late in 1928. When Moon dealers started handling them in 1929, motor stock in gen-

eral showed a net decline. But by January 1930 financial panic seemed to have dwindled and car stocks were up 5.8 per cent.

Still Moon and Gardner, apparently in rocky condition, viewed that front-drive principle as a panacea for their ailing finances.

In February 1930, Moon listed its 250,000 new shares on the New York Stock Exchange—it already had 100,000 shares outstanding—to provide for the purchase rights of Ruxton. The publicity impact of the Ruxton had worn pretty thin in a year and a half. Dealers were rightly skeptical, having had nothing but promises. Cord had definitely stolen Ruxton's thunder.

Then John McArdle, vice-president of the Jordan Motor Car Company, told the press that New Era was planning a merger of Jordan, Kissel, Gardner, Moon, and Stutz. New Era by this time was a holding company with controlling interest of Moon shares given for the purchase of Ruxton. A few days later, Moon and Gardner announced consolidation of their sales organizations, and promised a new six-cylinder Gardner front-wheel-drive car. It never appeared. Stutz, meanwhile, vigorously denied any plans for merger and claimed that it was sound financially.

Suddenly the smoke screen cleared, and the big fight for control of the Moon moved into the open. At the beginning of April 1930, Moon stock was at a low of \$3.50. Eastern interests (New Era stockholders) called for a special directors' meeting and voted to increase the number of directors from seven to 15. It came as a terrific shock to Carl Burst and his old-guard cohorts to learn that New Era held, with proxies, 120,000 of the 350,000 voting shares of stock. Then New Era interests held another meeting and ousted Burst and Stanley Moon. W. J. Muller, Ruxton's designer, was named president of Moon. The next week Muller announced that Kissel had merged with New Era and would produce the Ruxton.

Meanwhile, Burst and the old officers had barricaded themselves in the Moon plant with armed guards. The New Era interests obtained a court order and moved in.

On May 13 a financial news release with a St. Louis dateline stated unequivocally, "The Ruxton front-drive car is now in production at the St. Louis plant of the Moon-Ruxton Company . . . it is expected that the car will be marketed on a national basis within the next four weeks . . ."

Then, on May 15, a confusing release reached the automotive press. New Era was



"That's all you ever think about; food—food—food!"

Motor Trend

moving from Philadelphia to St. Louis. Heretofore the Delaware corporation had maintained New York offices and of course had previously announced production and sales operations at both Gardner and Moon in St. Louis. How Philadelphia entered the picture, and why, no one seemed to understand.

At this stage Moon stock had risen to \$16.50 a share. The next flurry of news releases may show why:

On May 20: "Orders for 225 Windsor cars have been received during the past three weeks by the Moon Motor Car Company, according to Helm Walker, its vice-president in charge of sales. Windsor production will be increased from 15 to 25 cars a day."

On June 10: "... The Ruxton front-wheel-drive car will shortly be in production in the St. Louis plant of the Moon Company and the company's sales organization has contracted for the distribution of this front-wheel-drive car. Present plans are to continue production of the Windsor cars."

On June 16: "Kissel Motor Car Company will build Ruxton's front-wheel-drive cars, at the same time continuing its present line of Kissels."

On June 18: "The Ruxton Corporation, a subsidiary of Moon Motor Car, organized a sales and distributing corporation to handle output of both Moon and Kissel plants. Headquarters of the corporation to be at Moon Plant, St. Louis."

Kissel was notoriously shaky financially. Something was needed to bolster that end of the New Era's automotive empire.

"Hartford, Wis., July 7—... Kissel Motor Car Company will introduce to New York a new taxicab on July 15 known as the New Yorker."

"Hartford, Wis., July 21—Production of a new front-wheel-drive car will be under way soon at the plant of the Kissel Motor Company here. The car will be known as the Kissel-Ruxton."

With Kissel temporarily propped up by not-to-be-fulfilled promises, the scene of operations shifted to Canada, and the old pilot model Ruxton was polished up again and hauled across the border.

"Montreal, August 4—The Ruxton front-wheel-drive motor car made its formal public bow at the showrooms of Comfort Motor Sales, 3447 Park Avenue, during the past week."

That same day, the old Moon officers were slapped down for interfering with the operation of the Moon Motor Car Company and Circuit Judge Percy of St. Louis issued a restraining order.

By this time the complicated financial structure was about to crumble. News props were no longer doing the trick. On September 20 Kissel was placed in the hands of receivers. George Kissel, fighting for reorganization, claimed that the receivership action was necessary "because of the failure of negotiations between Kissel Company and Archie M. Andrews and the New Era Motors Company of New York."

Moon stock had nosedived from its peak of \$16.50 to \$1.00 and on November 15, Moon, too, was placed in temporary receiver-

ship on the application of a minority stockholder who alleged that the company had ceased operation.

On December 30, Gardner ceased manufacturing activity and opened a retail store in St. Louis' automobile row where existing units were put on sale. On February 2, Kissel asked that its firm be judged bankrupt, claiming that it owed \$1 million to 12 creditors.

New Era, Moon, Gardner, Windsor, Kissel, and Ruxton were done. How many Ruxtons were actually made? No one seems to know for certain. Robert W. Hick of Cleveland, Ohio, owns a 1930 Ruxton roadster, with

Rauch and Lang body, which contains the fifth engine and the ninth frame. The Ruxton car, no one will deny, was quite an automobile. Actually not too many were produced. The frequently quoted production figures of 200 to 300 models are sheer nonsense.

In essence what happened between 1928 and 1931 was that a ghost car and dozens of unfulfilled grandiose promises gave the touch of death to a once fine and proud automotive producer, the Moon Motor Car Company, and gave Gardner and Kissel the last push into oblivion.

—Hank Wicand Bowman

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Seventy

An Invitation to Death?

(Continued from page 17)

Consider the case of the officer who ticketed a motorist for making an improper turn at 2:45 A.M. An hour later a Code Three message dispatched him to an accident on his beat. He found twisted wreckage and the same driver with the citation still warm in his pocket. "Just one difference," said the patrolman; "this time the driver was dead."

Other officers find their work rewarding; especially pleased are the men who have been working closely with the hot rod and sports car groups to make motoring sport and enthusiasm safe and sane. On duty and off, many patrolmen help these groups stage roadshows, reliability runs, hillclimbs, and other events where skill and safety, rather than speed and daring, win. Coming a long way since the days of all-out war between "rodders" and police, the new relationship has hot rod clubs recruiting guest speakers from the patrol, and many patrolmen turn out in their own cars, on their days off, to enter in rodding activities.

Some patrolmen find certain aspects of their jobs amusing, and none more amusing than the alibis offered quite seriously by the wide-eyed, "Who, me?" offenders. One, stopped for doing 60 in a 35 zone, said, "I just picked up a 100-pound cake of ice . . . see it on the back seat? And I'm trying to get back to the party before it melts." Another pointed urgently to his dashboard and said, "See how low my gas is? I was hurrying to reach a gas station before I ran out." And another, which the officer had to chase on a Code Three, hastened to explain, "I'm hurrying to the automobile agency before it closes so I can get the brakes fixed." The officer who heard the last explanation had the driver step on the brakes, watched askance as the black pedal sank clear to the floor. Two sailors who had hitch-hiked with the offender turned pale, and one had to be helped from the car, mumbling, "85 and no brakes . . ."

But the one most of the boys like to tell was offered up by an ultra-high-speed, out-of-state tourist who had been barreling along at a good 30 mph over the state limit of 55 mph. Said the tourist when stopped, "Yes, I know, I know this is a dangerous stretch of road. That's why I was hurrying over it . . . before I had an accident."

In addition to the regular patrol, the state has found it necessary to maintain a special unit of volunteers who act as a "shock troop" enforcement outfit. This selective enforcement band is moved about the state to concentrate activities in areas where the accident rate has taken sudden spurts. By studying the highly informative accident reports, these officers know the location and causes of trouble spots, set out to stop the offenders who are creating hazardous conditions. This group moves into an area for three weeks of steady work, moves out leaving behind a lowered accident rate and many multiple offenders who now know exactly which laws they were breaking.

One motorist who was stopped by an officer of this unit listened for a few moments and then piped up, "Okay, okay, give me a

ticket already. What're you, a teacher instead a cop?"

To build their educational program firmly on all sides, the State Patrol Academy instructors constantly play host to classes of captains and lieutenants who are instructed in the latest methods of law enforcement and traffic education. Staff teachers from the Academy and patrol higher-ups go out into the field, offering driver safety lectures at civic group meetings, school assemblies, and any other place where three or more interested drivers might gather. One point introduced recently at these meetings revealed that 80 per cent of all pedestrians who are killed have never driven a car, indicating that these people little realized the driver's limited control of his vehicle. Lecturers continue to punch this fact, and punch it hard.

The patrol cooperates in all safety campaigns, like a recent one which utilized the slogan, "Speed kills, take it easy." Working closely with the California Association of Insurance Agents, which was sponsoring the program, the patrol sent out over 7500



Highway Patrolman Earl Foster awaits report on youthful suspect. His tense expression reflects the consequences that might follow the all-important message

pieces of safety literature, granted 86 requests for loans of the more than 30 patrol-made safety films, set up a public safety exhibit in a major city auditorium, and had officers make safety appeals on 28 radio and six television shows.

One of the largest and most important aspects of driver education concerns the group of more than 6000 juvenile arrest cases a year handled by regional offices of the highway patrol. For many years, the only court entitled to handle juvenile offenses was the Juvenile Court; then the highway patrol assumed the task of disciplining and educating those juvenile drivers who are ticketed or stopped by the Highway Patrol. The patrol insists that parents appear before a hearing officer with the juvenile offender. The hearing officer offers the offender and parents a choice of patrol disposition or a transfer of case to the local Juvenile Court. Choosing the patrol's disposition, the offend-

Motor Trend

er gains one major advantage—the destruction of his or her Juvenile Index Record Card upon reaching the age of 18. In contrast, Juvenile Court records are permanent, bound to injure the youth's chances for employment or responsibility later on. The only drivers in the patrol's records who might have their index cards carried over into adult life are the habitual speeders, drunken drivers, hit-and-run or reckless drivers, and those convicted of a felony which involved the use of a car.

In their homelife, religion, politics, or any other aspect of life, the highway patrolmen differ as any group of individuals might, but they find a common ground, on the job, when they discuss traffic, automobiles and violations.

Said one, "My boy was just 16 last week and he's taking the family bus for the first time this weekend. Although I taught him everything I know about driving, I'm scared."

Another commented, "When I'm out of uniform, in my own car, I drive like everyone else doesn't know how..."

A third said, "Everytime I go after a 'screamer,' a speeder who's really moving, my heart starts to pound. I have to push that needle up past the 95-100 mark to catch him and I feel my life's not worth two cents if somebody doesn't get out of my way when I'm riding Code Three."

Not many drivers attempt to outrun the patrol cars, but when it happens, the patrol generally radios ahead for a pickup. In one case a Jaguar was stopped by roadblock and

color, make, year, occupants and estimated speed in a split second. When they can, they will "track" to get a reading for the violation; even when an offender hasn't been clocked, a judge will often back up a patrolman who has merely estimated the speed of an oncoming vehicle or one which suddenly slowed or stopped after spotting the patrol car. Most experienced patrolmen can, by sighting a car and hearing the engine, tell almost exactly the speed any given car is traveling.

Chasing a speeder during our tour, we were running Code Three (with lights, but no siren, because "it scares other drivers") when we pulled up behind a slow-moving car in the outside lane. The patrolman honked the horn for right of way and the front car droned onward. The patrolman honked the horn again but the car stayed in the same lane. The third time the patrol car honked, the motorist in front put an arm out the window, motioned for us to pass on the right. The officer reared back for a moment and then hit the siren switch. The front car moved dutifully and rapidly into the right lane but the patrolman turned to us and said, "This guy's more of a menace than the speeder. Let's grab him."

And we did.

These men tell time from the moment of accidents. They refer to all activities as so many hours, days or weeks since a particularly tragic Code Three call. Cruising in plain view, the white doors of their cars reflecting the yellow California sun, or gleaming ghost-like in the moonlight, they watch motorists tromp heavily on the throttle, "jack-rabbit" lanes, pull out too late or too soon. They have learned that decapitation by truck tailgate is almost as neat as the guillotine, and that a burning car which has tumbled drunkenly over a 1000-foot precipice can light up the night sky for 10 miles. If we were to ask an officer that old riddle about which would cause the most damage—two cars hitting head-on at 50 each, or one hitting a wall at 100, he'd shake his head, answer that it really doesn't make much difference... to the occupants anyway.

They learn the telephone numbers and signal numbers of the tow truck, the ambulance service and the morgue through use, and automatically snap them into a telephone or the radio to order out appropriate equipment. In emergencies, the words become cold, the tone lowers a bit, but the voice stays steady, calm; still, all is not calm within. Each admits that he's been ill, violently so, at a particularly gruesome accident and although they've learned to control their insides, they've never really had control over their emotions in the same way. One patrol veteran unashamedly burst into tears when they torched their way into a car which had hit a tree at 90, to drag out the remains of a three-year-old. "The kid didn't even have a head..." he blubbered to no one in particular.

To that patrolman, and his brethren in all the states, every driver and every vehicle is a potential Code Three—a potential high-speed, personal invitation to death—sometimes his, but most often yours.

—Ivan T. Galanoy

NEXT MONTH

Nearly every car sold is equipped with an automatic transmission; do you know

"WHAT IS THE IDEAL AUTOMATIC TRANSMISSION?"

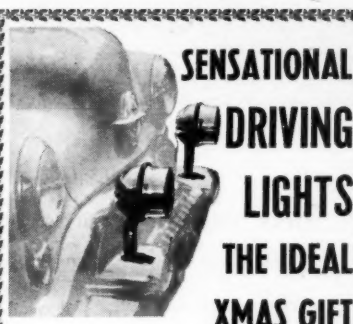
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the driver served with three speeding tickets for three different areas. Average speed for the three tickets was 98 miles an hour. Mused the Jag driver, "I always come over this road that way."

Should more speeders consider running, the patrol is being issued new "hot rod" Olds 88s which are capable of speeds in excess of 125 mph. To offset the dangers of additional speed, California's state patrol cars are now equipped with safety belts; the men recognize the value of this equipment, and judge it as a lifesaving advancement.

Although highway patrol officers are constantly misunderstood by some drivers who consider them uniformed devils who rise, siren moaning, from the very depths of the highway, MT learned that there is an unofficial leniency extended to motorists—those who do not drive recklessly. Most patrolmen allow a motorist up to five miles over the limit in built-up areas (but not school zones) and up to 10 miles over the posted limit on open highways.

But once the conditions of leniency are violated, once they're behind you "tracking" your speed, discussion with the officer is of little use regardless of how pleasant or polite you may be. There is no chance that they have mistaken your car for another, because their eyes are trained to pick out body styles,



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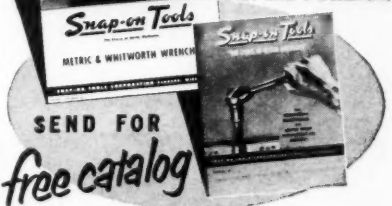
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Driving around with Walt Woron

First reports from the wheel of 1954's 235-bhp Chrysler, the new DeSoto Automatic, and Hudson's power-steering, power-brake-equipped new Hornet



AFTER TWO DAYS behind the wheel of the '54 Hudson Hornet (at presstime I'm driving it cross-country from Detroit to Los Angeles) I find that I like the car's roadworthiness above all else. Sure, it has plenty of punch at all speeds (this one has Twin-H Power, giving it 170 horses) and wherever I stop people ask me, "How fast will it go?" But a more important thing is that it sticks in corners so well that most of the time I find I don't have to slow down for them.

Because this car is equipped with export springs it corners somewhat flatter, but all Hudsons corner better than average anyway. This car also has power steering, which I personally don't feel it needs since the feel of a Hornet on the road is so good without it. I do find that as I drive it more I get used to it, so that at times I am unaware it has power assist. Of course, it comes in mighty handy when you're maneuvering in tight traffic and when you're parking.

Over the roughest surfaces and railroad tracks steering wheel vibration is barely noticeable and no shock is evident.

With export springs the ride is firmer than usual, but it still isn't what I'd call a stiff or hard ride. Not having passengers it's hard to tell how they'd be affected going around corners, but I do know that lots of paraphernalia on the front and rear seats doesn't slide back and forth. It seems to flatten out both the easy and hard dips, never once bottoming.

Shoulder, head, and leg room are all good, but I'd like a bit more movement in the seat track so I could stretch out my right leg more. The seat and seatback are both contoured nicely to fit your body and provide restful support.

It's much easier to read this year's instrument panel than last year's. The centrally located speedometer (with large white numerals on a black background), flanked by two gauges (temperature and fuel) and two warning lights on one side, the clock on the other, is in a shrouded unit raised above the dash. You don't have to drop your eyes very far from the road to read the instruments, which are all easy to read, incidentally. There's no glare from the top of the dash, since it's vinyl covered, but some from the chromed steering wheel crossbar bothered me at times.

I found that vision to the right front was good, mostly because the seat is high enough to give you a good view of the road and despite the fact that I can't see the right front fender. There's no blind spot to the right rear, but it took a while for me to find where the right rear fender was located.

Acceleration at all speeds, whether from a standstill or at low to high cruising speeds, is much better than average. As I said, it's got roadworthiness.

WHEN YOU GET in a car that advertises 235 horsepower, you expect to move—and you do. That's the new 1954 Chrysler New Yorker DeLuxe. You not only have quick acceleration from a stoplight (roughly two seconds faster than the '53 from 0-60 mph) but have greatly improved jump at passing speeds (about seven seconds faster from 30-80 mph, checked with a stopwatch). I'm glad to see the acceleration coming in at higher speeds since this is a definite safety factor—the longer you're on the wrong side of the road the more chance there is of an accident.

Last month we told you what the new PowerFlite transmission was like (Chrysler road test) but you'll be interested to know that since that time I've driven a Chrysler New Yorker that has chalked up 17,000 miles with this transmission. The up-shift was still smooth, which is one of the things that impressed me before. I've also tried a couple of other things with PowerFlite that are equally impressive. One was to place the selector lever in LOW, stand on it up to 72 mph, then shift into DRIVE. This isn't recommended practice, but shows that you needn't fear downshifting under almost any highway conditions. It won't automatically upshift from low range.

The other things demonstrate the durability of the transmission. Can you imagine cruising along at 30 mph in a car, any car, then rapidly shifting into reverse? That's what I did, at the insistence of Chrysler personnel. It nearly broke my heart to do it, but nothing else. The car shuddered and stopped. I flicked the lever back to LOW, it burned rubber and took off with a bound. It seems that Chrysler engineers have been consistently testing this at speeds up to 50 and have later

torn down the transmission for examination. After such harsh treatment, they've found nothing wrong.

Outside of the engine on the '54 there aren't many other basic changes that you'd notice in driving. The car gives you a secure feeling because the body feels so solid, the chair-height seats are not only comfortable for long trips but give you a good view of the road, it handles well on washboard roads, the power steering still takes getting used to, there's hardly any body movement over the roughest roads, it rides solidly, and cruises happily at any speed. Altogether, a most satisfactory car.

VINCE GARDNER, builder of the Vega (Sept. '53 MT) had just settled down in the city (Detroit). One night he decided to play a hunch. Went to see a '40 Lincoln Continental convertible in a backyard garage. Liked it. Body was in great shape (although repainted an unbecoming maroon). No perceptible rattles emanated from the car. Interior was virgin as far as dash and leather upholstery were concerned. Only the engine was changed—to protect the innocent (from the V-12).

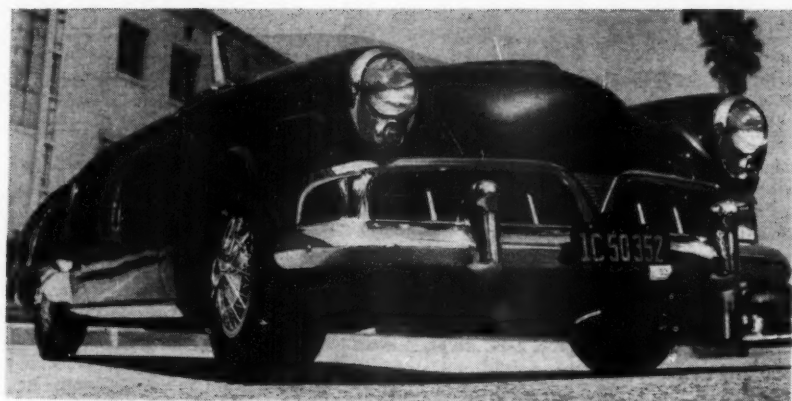
Vince then called me. "H'lo, Walt." "H'lo, Vince." "Got a Conty." "Great!! I mean . . . great." "Wanna see it?" "Okay."

He reported in at 8:31 P.M. Knew it was 8:31 because my watch had stopped at 8:30 and I'd counted to 60. Looked at it, liked it. Told the chief. He said to drive it. Did. Liked it. Was fun. Used Mercury engine and two-speed rear axle. Goes and goes in first and second overdrive. Sits well. Firm, solid ride. Has good response. Not a sports car, but much fun to drive.

Glad Vince played a hunch.

AND NOW FROM the light-hearted to the more serious side. Just at presstime I had a chance to drive the '54 DeSoto at the new (and as yet incomplete) Chrysler Proving Grounds. It was a four-door sedan, with the 170-hp engine, PowerFlite, power brakes, and power steering. First noticeable thing on climbing into the car (which is quite easy, incidentally) is the new dash panel. Very readable circular gauges cluster around a central speedometer. All controls are conveniently grouped

(Continued on page 74)



Still identifiable as a Studebaker, John McDaniel's sparkling green custom boasts strongly accented, but smooth hood line

A CUSTOM doesn't have to be a mass of flowing lines designed to conceal a car's identity; it can be as simple as the cars shown here, where a dechromed deck, an altered top, or an open wheel well can make the difference between a stock car and a distinctive custom. More and more customizers are retaining stock appearance in their creations, but rely upon dechroming, lowering, and altering stock contours to gain individuality.



Utilizing sleekness as its keynote of design, McDaniel's Studebaker has dechromed deck, but retains gravel guards on sides



Left, Mike Hunter's nosed-and-decked '50 Olds gains individuality with lowered hood, open wheel wells, lowered chassis

A real one-of-a-kind among Cadillac customs, Marvin Faw's business coupe is nearly stock, yet differs greatly from its kin



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Seventy-four

Driving Around With Walt Woron

(Continued from page 72)

underneath. Vinyl still covers the top of the dash, cutting down on glare. You still can't see the right front fender from behind the wheel, but the chair-height seats and sloping hood give you a good view of the road ahead.

Tried the emergency brake on a 19 per cent grade and found it would hold. Then started up in DRIVE with no trouble at all. PowerFlite is a welcome addition to the DeSoto (as it is to Chrysler and Dodge).

The 10 more horsepower has greatly improved acceleration at cruising speeds and for anyone who is likely to drag away from a stoplight, he'll be interested to know that he can get up to a true 60 mph in around 14 seconds. To counteract this increased

speed are the power brakes, which are sure, positive, and not so overly sensitive as to pitch passengers forward suddenly when you're braking.

You'll remember that last year we said we liked the way the DeSoto handled. I'd say that with this year's new suspension that's supposed to decrease body roll in turns, the car handles even better. Around a highway S-turn marked for 30 mph, the tires couldn't even be made to squeal until 60 was reached. The body leaned noticeably, but not enough to cause concern to driver or passenger.

Ride is about the same; if anything, just slightly firmer. It never bottomed (even over a bad railroad crossing) and body oscillation after hitting dips and bumps was missing. The new Oriflow shocks (changed this year) provide more resistance to rebound. I'll be looking forward to our full-scale test of this car later on. —Walt Woron

Exhaust Systems

(Continued from page 23)

All through automotive history, racing enters the picture in one form or another. Hot bloods of an earlier age could not resist the temptation to compete against each other for speed. Obviously that led to modifications in engines for additional horsepower. That led to the "stub" exhausts. Short horizontal tubes were fine at first, but as speeds increased, the short straight pipes from each cylinder showed certain disadvantages, one of which was to divert sheets of flame into the driver's hair. In all probability the first engineer to discard the stubs and the labyrinth exhaust manifolds was an expert in the hydraulic field. Specialists in the research of fluids had partially disproved the old saw about a straight line being the shortest distance between two points. It would not always work in their field.

They decided the most efficient flow from the exhaust valve to the outer air would be determined by smoothness rather than direction of flow. Discarding the manifolds of many straight but short lines, engineers developed a system of curves for the exhaust gases to follow. Today we call them headers or, sometimes, exhaust collectors. A combination of what might be considered contradictory principles (curved headers, straight-through mufflers) provides the most efficient exhaust system yet in practical use.

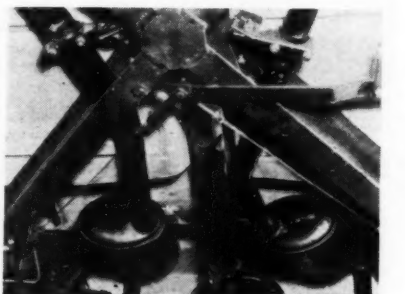
Ready-made headers are available for most of the current cars, and may be installed on any car by special order. The terrific swing to the V-type engine has created a heavy demand for the dual system of exhausts in an effort to get the "just a little bit more" that many drivers demand.

Other car manufacturers are also turning an attentive ear to exponents of the dual system (Cadillac adopted it in 1952; Chevy uses it on the Corvette, and more than one manufacturer equips his police cars with duals). Other manufacturers are planning the use of dual exhaust systems for '54. That is adequate proof for the most skeptical that efficient exhaust systems are important. In spite of much controversy on the subject, a proper header and muffler arrangement im-

proves the performance of almost any car.

There is some difference in the systems offered to the consumer. Most of it concerns quality of materials and workmanship. Many concerns now also offer the choice of fabricated or cast header setups.

When the car owner decides to install dual mufflers and headers, he (or she) must be certain that one of the failings in either the dual or single header/muffler combo has been considered. As headers provide a faster flow of exhaust gases to the muffler, it must be capable of moving it through. If not, the entire unit becomes less effective in increasing road hp. The importance of installing matched and balanced header/muffler sets cannot be overstressed. The best way to assure satisfaction is to purchase your equipment as a unit from one manufacturer or consult manufacturers of the components about the advisability of matching their products.



Like the Cadillac and '54 Chrysler V-8s, Chevy's Corvette has adopted dual pipes

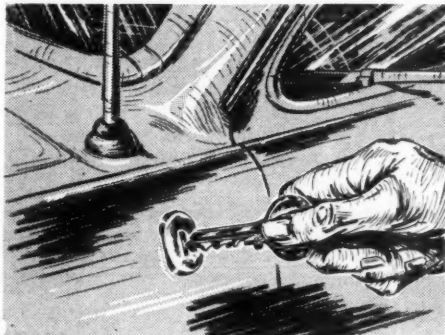
What does the future hold for mufflers? It's hard to tell, and none of the manufacturers are talking. They're experimenting with new materials for sound deadening and you may be sure that recent experiments in resonant frequency dampening for high fidelity sound reproduction will have a lot of future influence. There may be an electronic muffler among things to come, but no one yet has a system that can substitute for dual exhausts and/or headers as long as the internal combustion engine remains the powerplant.

—Dick van Osten

What's Your Idea?

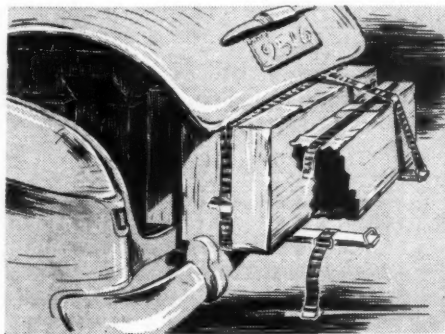
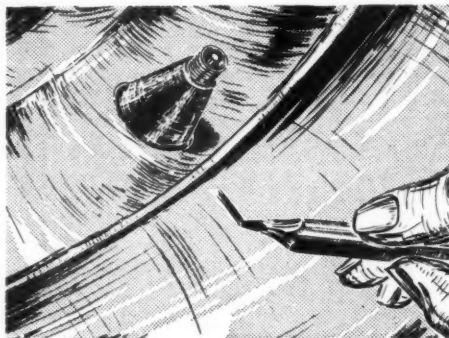
(A two-year subscription to MOTOR TREND will be given for ideas selected for use in this column. Submitted material cannot be returned.)

Illustrated by George Wallace



I INSTALLED A CHRYSLER horn relay on my car so the horn can be blown only when the ignition is on. Next, I put in a burglar alarm switch (a sensitive contact switch which blows the horn when the car is moved the slightest amount), and mounted a key-operated switch outside the car to control the alarm. Now children can't blow the horn when the car is unattended, and I have added theft protection. *Robert E. L. Keller, Wappinger Falls, N.Y.*

WHEN A FLAT TIRE is repaired, it is rarely mounted in the same position it was in before it was removed. This can upset wheel balance. To avoid the cost of unnecessary balancing jobs, mark the tire (with chalk or pencil) opposite the valve before repairing the flat; this way, the tire can be replaced in its original position. *Gregg Neilson, Shreveport, La.*



TWO STEEL RAILS, bolted to the trunk floor and placed so they'll protrude out over the bumper, will give you extra floor area when you have to carry more luggage than your trunk can hold. Adjustable straps, along the sides and at the ends of the rails, will keep the baggage from falling out. *Ted Templin, Burbank, Calif.*

NOW THAT WINTER'S HERE, many motorists need a helping hand to guide them out of snowdrifts. Here's my suggestion: Two rolls of lath (wood strips) kept in the trunk can lend just the hand you need to pull out of snow or mud. One roll placed in front of each rear wheel can save your tires and temper. *Dennis Wyatt, Medford, Ore.*



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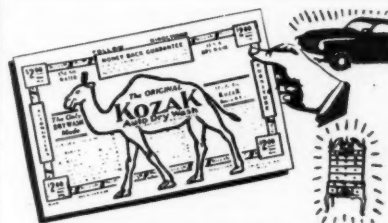
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'47 LINCOLN club coupe, original black paint, good overdrive, never wrecked, mechanically fair, drive anywhere, \$300. C. Morris, 600 Cave St., Tusculum, Ala.

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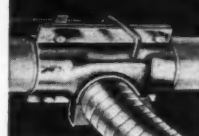
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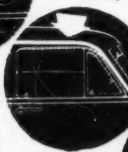
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Seventy-eight

SELL (Continued)

'23 OVERLAND RED BIRD touring, good running condition, body sound, upholstery good, good tires, \$280. C. Rizzotto, 1426 62nd St., Kenosha, Wis.

'52 LINCOLN ENGINE, complete with accessories, brand new, \$625. J. Mazeau, 29 Horseshoe Dr., Northport, L.I., N.Y.

EDELBROCK HEADS, one set to fit 60-hp Ford, 9:1 ratio, new, \$21. J. Mazeau, 29 Horseshoe Dr., Northport, L.I., N.Y.

TWO EDELBROCK intake manifolds, super duals to fit '49-'51 Ford or Mercury engine, new, \$28 each. J. Mazeau, 29 Horseshoe Dr., Northport, L.I., N.Y.

'53 MG TD; 7000 actual miles, never seen competition of any kind, extras include Bell dual muffler set, windwings, heater, etc., only \$1875. W. Snyder, 2434 McCracken Ave., Muskegon, Mich. Muskegon 51-573.

'53 LANCER FIBERGLAS sports car, '48 modified Merc engine, Zephyr transmission and overdrive, Butane fuel, licensed and in operation, sell for wholesale cost of parts, \$2250. P. Skelton, Box 104, 31322 Guadalupe St., San Juan Capistrano, Calif.

'33 PONTIAC EIGHT tudor sedan, solid body, five wire wheels, 64,000 miles, owners manual, engine, transmission, rear end recently rebuilt, new battery, drive anywhere, \$245. O. Vetter, Rt. 1, Box 578, Farmington, Mich.

'39-'48 FLYWHEEL, 18 lbs. balanced, \$12.50; Gran-car 8.2:1 head, \$50 pair, one pair '39-'48, one pair '49 up, new, never used. W. Wayne, 7105 Montgall, Kansas City, Mo.

MODEL K LINCOLN phaeton, '35, seven passenger, 3000 miles since overhaul and paint and new top, excellent mechanically, good tires, nearest offer to \$650. R. Cobb, 410 Ashland, Buffalo 22, N.Y.

IMPORTANT NOTICE

Last month we announced a new program in this department: With your ad, we'll publish selected photographs of cars you want to sell or swap. There's no cost to you, but we'll have to decide which photos to use. Sorry, no photos can be returned.—Editor

AUBURN SPEEDSTER, model 851 supercharged, excellent condition, strictly stock, 5000 miles since body rebuilt and installation of Lyncing factory rebuilt engine, nearest offer to \$1850. R. Cobb, 410 Ashland, Buffalo 22, N.Y.

'34 BUICK PHAETON, maintained for daily use city traffic, about \$300 will put it in mint condition, collector has offered \$600. Mrs. T. Harp, 5904 Greenlawn Dr., Bethesda, Md.

'26 FRANKLIN TOURING; top, paint, upholstery, interior, and mechanically excellent, four new tires, shown at recent V.M.C.C.A. Meet, \$1000. K. MacDowell, 280 Waltham St., W. Newton 65, Mass.

55-100, ABSOLUTELY perfect, \$1000 spent to recondition, undoubtedly finest in U.S., complete inspection privileges, tremendous performance, manual and parts stock included, photos 50¢ deposit, \$2450. B. Acworth, 411 Seekamp Ave., St. Louis 22, Mo.

BRAND NEW 5 1/2-inch Bermuda-style carriage bell, fits under floor boards, looks like the one on page 96. Oct. Motor Trend, \$13.75 parcel post insured. A. Davis, Box 58, Mammoth, Ariz.

'27 CADILLAC CABRIOLET, original owner, original paint, good running condition, driven less than 40,000 miles, always kept under cover, \$300. A. Watland, 1318 N. 19th St., McAllen, Texas.

'36 FORD CONV. SEDAN, 23,000 miles, blue, white top never down, like new and all original throughout except new Firestone whitewalls, photos 10¢, \$900. J. Pollock, 1276 Meadowlark Ave., San Jose 26, Calif.

'32 FORD FIVE-WINDOW coupe, good shape, set of hydraulic backing plates, sway bar, five in. shackles, want \$150. B. Scott, 1 Woodbury Rd., Trenton 8, N.J.

L-29 CORD four-door sedan, cloth top, new tires, needs paint, \$650. G. Sanders, 696 Crockett St., Beaumont, Texas.

'52 XK-120 JAGUAR, British racing green, white-walls, like new, never raced or wrecked, discount for cash. B. Spangler, 530 N. 13th St., Mattoon, Ill.

'33 AUBURN CONV. coupe, V-12, original dual carbs, coils, mufflers, low ratio rear, dual transmission, etc., 30,000 miles, excellent condition, \$725. D. Aronow, 111 Glenwood Rd., Elizabeth, N.J. Eliz. 38060.

'32 L-29 CORD conv. coupe, all original parts and in running condition, needs complete restoring, mechanically very good, \$250. D. Aronow, 111 Glenwood Rd., Elizabeth, N.J. Eliz. 38060.

KURTIS-KRAFT CHRYSLER V-8, many modifications to engine and chassis, 31 gallon tank, removable top, overdrive transmission, large reworked trunk, over \$8000 invested, price, \$4850. R. Roulette, 240 Spreckels Bldg., San Diego 1, Calif.

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729 1/2 N. Western Ave., Los Angeles 29, Calif.

'24 **PACKARD EIGHT** seven-passenger touring, 140 in. wheelbase, complete side curtains, etc., mechanically excellent, body excellent, upholstery poor, rare car. R. Howe, 5239 Fulton Ave., Van Nuys, Calif.

'24 **BUICK SIX-CYLINDER** touring, completely restored, will drive anywhere, completed recent Glidden tour, no trouble, 950 miles, \$950. Swap for old unrestored antique. D. Sawatzki, 4288 Shreve Dr., Bridgeport, Mich.

MODIFIED BW SPORTS in top condition, full race Ford engine, \$1500. Will sell engine separate for \$450. Also stock BW body, fits Ford chassis, \$600. W. Hamilton, 83 Trask Ave., Bayonne, N.J.

'41 **CONTINENTAL** conv., excellent throughout, new Firestone puncture-proof tires and tubes, cream yellow paint and top both new, very moderately customized, \$1200. W. Weiss, Montgomery, W. Va. '36 **PACKARD EIGHT** conv. coupe, model 120, only mechanical work needed on knee action and brakes, a clean chassis in running condition, make offer. J. Heffron, Crum Creek Farm, Berwyn, Pa. '52 **SUNBEAM TALBOT** sedan, everything original, 14,000 carefully driven miles, Motorola golden-voiced radio and factory heater, perfect condition throughout, \$1795 cash. P. Kinsolving, 5610 N. Tenth Ave. Phoenix, Ariz.

'46 **LINCOLN CONTINENTAL** hardtop, dark blue, '52 Lincoln engine with 6000 miles, new clutch, brakes, running gear, nylon upholstery on seats, excellent condition mechanically. N. McGee, 2218 Maple St., Billings, Mont.

'41 **LINCOLN CONTINENTAL** conv., Lincoln V-8 conversion, immaculate and original, Ford Motor Company exhibited this car at Greenfield Village during the Glidden tour, \$2500. C. Stroh, Jr., 909 E. Elizabeth, Detroit 26, Mich.

'52 **NASH HEALEY** conv., green, light brown leather interior, whitewalls, never in competition, never abused, \$2975. J. Almo, Waldorf, Md.

'38 **CADILLAC 65** sedan, only 26,000 miles, original Antoinette blue finish, Firestone whitewalls, beautiful car in perfect condition all the way through, \$900. C. Thompson, R.D. 1, Hubbard, Ohio.

'31 **CADILLAC V-12** distributor cap, brand new, \$10 plus cost of this ad. G. Boranchuk, 6 Magnolia St., Newark, N.J.

'47 **LINCOLN CONTINENTAL** conv. in excellent condition, new top, cash, \$1895. J. Kash, Box 418, Paducah, Ky. Phone 32055.

'48 **LINCOLN CONTINENTAL** coupe, Olds 88 engine, custom upholstery, new tires, and in perfect condition. G. Fuller, Box 628, Salina, Kans.

'48 **CANADIAN LINCOLN CONTINENTAL**, hardtop, immaculate, new centipede whitewalls, will accept trade, pay difference for Cadillac or open for offers. Reverse charge on phone calls. L. Weir, Milde Rd. West, R.R. 7, London, Ont., Canada.

WANTED

'41 **CADILLAC**, small Fleetwood, Special 60, must have sliding roof and Hydra-Matic, only car in original and near-new condition considered, with genuine low mileage, send snaps, full details and price first letter. Office of Conductor, Victoria Symphony Orchestra, PO Box 445, Victoria, B.C., Canada.

ONE PAIR of rear fenders for '32 Ford pickup, only pickup fenders will fit. A. Parker, 620 E. Fourth St., Stockton 6, Calif.

MODEL T FORD PARTS: two flat-type front fenders, one running board, crank, 13 in. steering wheel, for '09 car; '09 license, Md., Mich., or Maine. W. Prentice, 1727 East 35th, Baltimore 18, Md.

WILLS STE. CLAIRE touring or roadster regardless of condition, or La Salle roadster or touring, \$25. Reward for lead. Dr. M. Roth, 2156 Pacific Ave., Long Beach, Calif. 18 75485.

ORIGINAL '34 to '38 FORD phaeton, not customized; will trade '27 Ford T coupe and new Offenhauser dual intake manifold for phaeton. G. Fogelstrom, 543 Blair Ave., Eugene, Ore.

FOR '30 PIERCE ARROW sedan Type A; radiator ornament, ash tray, windshield raiser, brake, clutch pedals, exterior, interior visors, other parts, literature or correspondence. H. Tobin, 349 Summer St., Lynn, Mass.

WIRE WHEEL HUB CAPS for Willys-Knight 66B '30 great six, new or used; also new pistons, sleeves, rings, sketch furnished in absence of part numbers. E. Stidworthy, 69-73 Main St., Warwick, N.Y.

AUBURN SPEEDSTER in good condition, state year, price and repairs needed, if any. Major W. Pelton, 6-5 Weather Detachment, Kelly AFB, San Antonio, Texas.

SELL OR SWAP

'52 **CISITALIA** conv. coupe, 202-C, 1090 cc, Farina green body, Borroni-mag. wheels, Pirelli tires, entire condition good, swap for small sedan with cash. T. Solanic, 723 N. Seventh St., Allentown, Pa.

'37 **CORD SUPERCHARGED** conv., four-passenger, original and complete, new paint, \$1750 or swap for Cadillac. H. Wilson, 4138 Wade St., Venice, Calif. EXbrook 77016.

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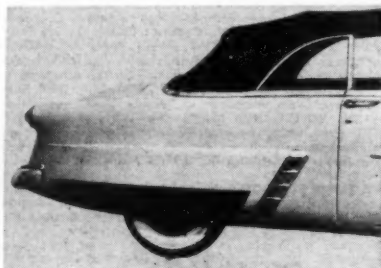
TRENDS IN PRODUCTS



IF YOU OWN a '53 Studebaker, you'll be interested in this highly polished, finned aluminum valve cover, said to aid in heat dissipation and reduce tappet noise. Price, \$43.50 a pair. For information on other Stude accessories, write: Offenhauser Equipment Corp., 5054 Alhambra Ave., Los Angeles 32, Calif. (California orders add three per cent State sales tax.)



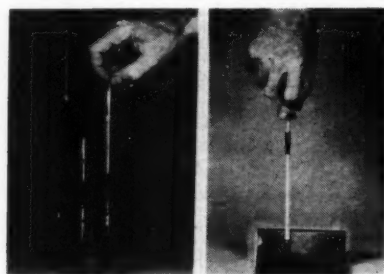
IF YOUR CONVERTIBLE TOP looks shabby, or if you don't like its color, this item may be for you. Two coats (one quart) of a new plastic solution is claimed to add from one to three years to the life of your top. Price, \$5.00 a quart (includes taxes and postage). Wide choice of colors. Top Secret, Box 2232, Van Nuys, Calif. (California orders add three per cent State sales tax.)



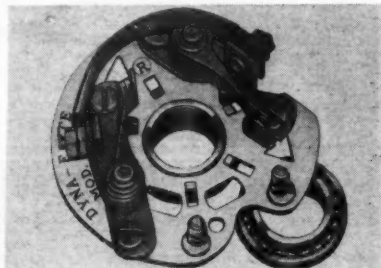
HERE'S THE NEWEST in deluxe fender skirts for '52-'53 Fords and Mercurys. Designed for all models except four-door sedans, they are shipped ready to install, with no holes to drill, no welding, no cutting. In primer-coat finish, they're yours for \$39.95. Write Star Automotive, 13233 S. Alameda St., Compton, Calif. (California orders add three per cent State sales tax.)



BATTERY TROUBLES? Here's a line of six- and 12-volt batteries with a 10-year guarantee. Using "European-type Nuclear cells," the batteries are claimed to be capable of instant energy releases of up to 2000 amps. Prices: six-volt, \$29.95; 12-volt, \$34.95. Life-Long Battery Mfg. Co., Dept. M, 11766 W. Pico Blvd., Los Angeles, Calif. (California orders add three per cent State sales tax.)



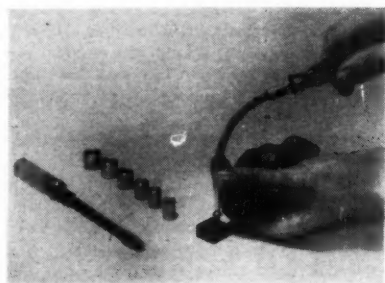
A NEW DEVELOPMENT in screwdrivers, the Tension Tip is said to reach into "impossible" areas, where many of the older clamp-type drivers are useless. Available with four-, six-, and seven-inch blades, prices are 75 and 85 cents and \$1.00, respectively. All three, \$2.50 postpaid. T & T Products, Dept. MT, 1562 DeKalb Ave., Brooklyn 22, N.Y.



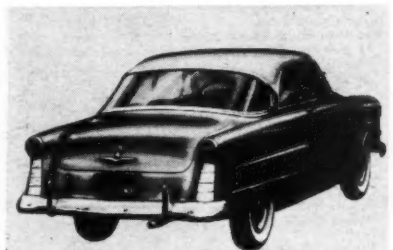
RENBERLES' NEW PRECISION ball-bearing, dual-point distributor plates have recently been made available to car owners. The model 208-D plate for Fords, Mercurys and Lincolns is priced at \$5.75 (less points). Ball-bearing advance plates are also available for other cars and trucks. For ignition accessories, write Renberles Products, 18606 Fitzpatrick Ave., Detroit 28, Mich.

Motor Trend

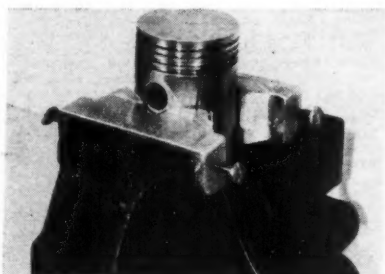
This department is not composed of paid advertising. All items are guaranteed for immediate refund if you are not satisfied.



A NEW TWIST in screwdrivers, this interesting flexible shaft model is cadmium-plated and has an unbreakable amber handle. The shank is said to be flexible enough to bend freely and still turn the screw. The screwdriver is \$1.50 and a companion socket-wrench set sells for \$3.00. For postpaid delivery, order from L. B. Miller Co., 394-6 State St., Stamford, Conn.



SOMETHING DIFFERENT in customizing accessories is offered to owners of '52-'53 Fords (the maker claims it will fit '54-models, too). These chromed "spats" are made of triple-plated, heavy-gauge metal. Simple installation. Price is \$12.95 a set, from Bonzer Mfg. Co., 1550 Seabright Ave., Long Beach, Calif. (California orders add three per cent State sales tax.)



YOU CAN MAKE your shop vise a piston vise with these aluminum alloy jaws. Designed for vises up to 4½ inches, they are said to hold any passenger car piston without distorting or marring the finish. This handy accessory sells for \$4.95 postpaid. Thomas D. Lloyd, 8737 Norris Ave., Sun Valley, Calif. (California orders add three per cent State sales tax.)



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NEW KURTIS 500-KK CHASSIS \$1290

Patterned after the winning Bill Vukovich "Fuel Injection Spec" Kurtis 500, this new Kurtis 500-KK Tubular Chassis is now available to sports car and hot rod builders.

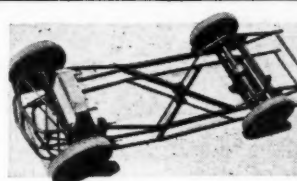
Chassis can be purchased complete or in various stages of construction.

Chassis is adaptable to fiberglass or metal bodies.

Frame length: 158". Width: 40"
Wheelbase: 100"

Tread: 58" front. 56" rear.

All prices f.o.b. In California add 3½% sales tax.



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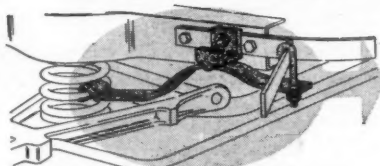
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Keep It Clean!

(Continued from page 59)

up, it's time to change the filter. That is not true, however, with the new detergent-dispersant additives in heavy-duty grades of oil.

The chemicals keep the dirt suspended in a finely divided state in the oil, and won't let it coagulate into particles large enough to be filtered out (though, of course, anything large enough to be harmful to the engine is filtered). In other words, a detergent oil will become dark and clouded almost immediately, and stay that way. As a matter of fact, if it should begin to clean up after several thousand miles, it indicates that the detergent additive has been consumed and you need an oil change! There are certain quick chemical tests that industrial

men use to determine the true condition of their motor oil, but they are hardly practical for John Q., so in the case of detergent oils you'll just have to go by mileage and driving conditions—and maybe a look at the filter element itself—to tell when to change.

Incidentally, it is possible to install a partial-flow oil filter system on most any model of older car that didn't carry a factory installation. All the filter manufacturers have universal kits available, and from here it's just a matter of drilling and tapping a couple of holes and hooking it up. The job will average around \$15, including all parts and labor. Under certain conditions, such a conversion could be well worth the expense—such as if you have low mileage on your engine and you plan to keep it awhile. On the other hand, I can't see putting an oil

filter on a '37 Chevy with 160,000 miles just as a gadget!

That advice applies to other types of filter accessories not supplied by Detroit. The accessory houses are full of specialty filters for gas, oil, water, etc., that may not be economically practical to put into volume production. And yet these filters all have their place; in your particular case they may be well worth the price.

So that's the story. Detroit has given you what you need in engine filtering at the price you're willing to pay. It could do a lot better given, say, \$25 more per car. For instance, one thing the American car sorely needs is a better crankcase ventilating system. I could tell you some things that would curl your hair. But that's another story. . . .

—Roger Huntington

MOTOR TREND INDEX Complete Index of Articles from Jan. '53 to Dec. '53

NOTE: This index is a compilation of articles which have appeared in issues of MOTOR TREND from Jan. '53 through Dec. '53. It is being presented as a convenience for readers who may have missed an article in which they are particularly interested. It will be noted that the articles have been placed under specific categories for easier reference, and the names given are not necessarily the titles of the articles. This index does not include such regular monthly features as "Spotlight on Detroit," "Classic Comments," "European Newsletter," and "MT Technical Service"; however, the most important cars and items from these have been listed under their particular categories.—Editor

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Which Do YOU Believe?

Is It ACID or FRICTION that Makes Your Engine Lose Power, Lose Pep and Wear Out?

IS IT ACID OR FRICTION?

Engine friction—excepting fans, pumps, belts and windage—is negligible. Our tests show almost no metal to metal contact. Acid is the real cause of motor deterioration.

WHERE DOES ACID COME FROM?

Gasoline is about 1/1000th sulfur. Leaded gasoline also contains bromine and chlorine. In 1000 gallons (enough for 15,000 to 20,000 miles) there is about 6 lbs. of sulfur—enough to make 5 gallons of strong sulfuric acid. When gasoline burns corrosive gases (SO_2 , SO_3 , HBr and HCl) blow by the pistons into the crankcase. Here they combine with the condensed water almost always present in oil to set up a vicious circle. SO_3 is a thirsty compound. It absorbs water to form sulfuric acid, which in turn attracts more water, forming H_2SO_4 , H_2CO_3 , and more H_2SO_4 , HBr and HCl. Acids cannot work without water; your engine makes large amounts of it; you have seen it drip from your exhaust.

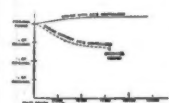
WHY AREN'T MOST ENGINES DESTROYED IN A SHORT TIME?

Some engines ARE. In door to door service some have an appallingly short life. Often only 15,000 to 20,000 miles! Enough materials blow into the crankcase to make a pint of acid a day. Most of these are removed by ventilation but the small amount left is enough to damage your engine seriously. Even carbonic acid, which you drink in soda pop, is powerful enough to corrode iron 1/3 inch per year!

HOW CAN YOU ELIMINATE THESE ACIDS?

Acids destroy themselves by eating metals. Acids attack first metals most easily eaten. Almost perfect protection is obtained by a special alloy of magnesium and aluminum. Since magnesium is by far the most easily attacked metal in the engine, the acids eat it and are destroyed. Without acids water is no longer held. Without water acids cannot form. The vicious circle is interrupted. Less sludges, gums and resins are formed.

HERE IS THE PROOF



Graph showing power loss of unprotected engines compared with the power gain for engines protected by the Magna-Power unit.

er. Many have gone 120,000 miles. Fig. 1 shows the normal decrease of engine power, compared with the power output of engines protected from acids. Top performance is yours almost indefinitely—one, two, five or even ten years. Most protected engines are outlasting their bodies.

2. Spark plugs last up to 60,000 miles.

Waste less gas. Fig. 2 shows plugs from a set of 8 after 35,000 miles—the entire set still testing 95% efficient!



Spark plugs from a protected engine after 35,000 miles—still nearly perfect at 95%.

3. Friction wear almost disappears. (Fig. 3) Fleet tests show wear reductions of almost 6 to 1 in stop and go service.



At left a bearing from a protected engine after 112,000; right, from an unprotected engine at 63,000 miles.

SUMMARIZING:

Normal wear, as you know it, does not exist. Manufacturer's performance figures are increased up to 10% in economy, speed, power. Engine wear life is increased to at least 300,000 miles by adding the Magna-Power Acid Neutralizer. Magna-Power will help any engine which uses less than 1 qt. of oil each 500 miles, OR YOUR MONEY BACK.



When your oil is changed, your mechanic replaces the drain plug with a Magna-Power acid neutralizer for complete and permanent protection.



At left is an engine from milk deliverer at 65,000 miles. It has already gone twice as far as its unprotected brother and is only 1/4 worn out. At right are shown several large city buses—part of the extensive fleet testing program that is proving more and more each day the amazing truth about acids in your engine.

THE ANSWER to this question is an amazing story. The solution of the problem can give your car more power, more pep and incredibly longer life. This is a semi-technical discussion of an important subject—doubly important now that automobiles are so complex and expensive.

DO YOU WANT MORE POWER, MORE SPEED, LONGER LIFE FROM YOUR CAR?

Read this! It will show you what to expect from your engine. The results are fantastic; far greater than expected, but tested and proved! POWER—You want all the power from your car that you paid for. You will probably get it for 10,000 or 15,000 miles at most. After that you can expect to lose. Now, by simply "killing" acids that form in your engine you can get more power than new—10% to 15% more—and keep on getting it for tens of thousands of miles.

PERFORMANCE—You want your car to "get up and go" when you step on it. Give it a chance! An engine protected from acid will amaze you with its incredible pull and snap. Listen to what Mr. B. A. Wadehouse of New Brunswick, N. J. has to say—"I am really astonished at what this neutralizer has done for my Buick. Normally at 38,000 miles I would be getting noticeably less power than when the car was new. The amazing thing is that it has more power now than ever before; it really leaps away and goes effortlessly to the highest speeds I use. Even there it has terrific acceleration and snap."

You get higher compression, more power and better economy when your engine is protected by MAGNA-POWER acid neutralizer.

SPEED—We don't like to stress speed—yet it is there for those who want and need it. Frank M. Meeks of Plainfield, N. J. says that he has "never seen anything like it! My Hudson with 20,000 miles on it will now go well over 100 miles per hour. It has a much better engine now than when it was just broken in. Furthermore, I am amazed by the almost complete lack of sludge. I have always had inspections made at 20,000 mile intervals to clean out the deposits and sludge. It looks like this will not be needed any more."

LONG LIFE—Your engine should deliver up to 300,000 miles of service without overhaul! Tests where cars are run day and night mean nothing except that they will go that far (generally 100,000 miles) when run day and night. You want to know how far your car will go the way you drive it. At a rate of 10,000 or 12,000 miles per year—average driving—we have cars that have gone 140,000 miles so far and fantastic as it seems, these are just barely worn in. At this rate of wear, these engines will need overhaul at 600,000 miles!

Here is what you can do to keep your engine in new condition:

Use the lightest oil your engine will hold. It should use at least a quart each 1,800 to 2,000 miles to seal and lubricate the top rings; some oil will be lost to evaporation and burning. Check frequently for oil leaks.

Use a good oil filter to take out dirt and other foreign matter. If you have a built-in "full flow" filter, a cartridge type by-pass filter will help to keep out the smaller particles left in by the full flow type.

Use an oil bath air cleaner. About 1,000,000 cubic feet of air passes through your engine—enough to fill 40 average houses—every 10,000 miles. A difference of 2% dirt removal can mean 60 to 70% in abrasive wear.

Use oil additives (solvents) every 5,000 miles to take out the small amounts of resins and gums that do form.

Neutralize corrosive acids and slow the formation of gums and resins with the Magna-Power Acid Neutralizer. Strong acids are the cause of up to 90% of engine wear, while the gums and resins form varnish on the engine parts, cause valve and ring sticking, power losses and high oil consumption.

Install the Magna-Power by screwing it into the oil pan drain hole. When the oil is changed—or at any other time by catching the oil, for the Magna-Power. At each oil change wire brush the magnesium alloy section to remove the deposits that collect. Owing to the unique action of the Magna-Power in stopping strong acid formation almost before it begins, much less deposits form. These deposits can nearly stop the chemical action as shown in Fig. 7 showing a used and a wire brushed Magna-Power in weak acid. The used, coated one is not working.



Winthrop A. Johns and the original test car—says Win, "I don't expect to live long enough to wear this engine to the first overhaul! At the present rate of wear it will run at least 700,000 miles, if the parts do not break from fatigue."



A check test of a used element in a weak vinegar (acetic acid) solution. The used element at left is covered with engine deposits and should be cleaned.

Satisfaction

Guaranteed

or Money

Refunded

JOHNS, Mrs. C. J., Dept. M-5, Dunellen, N. J.

My car is 8 (make) year.

Please send me a MAGNA-POWER acid neutralizer. I enclose \$2.95. I understand that it is sold with an unconditional guarantee of satisfaction or my money back!

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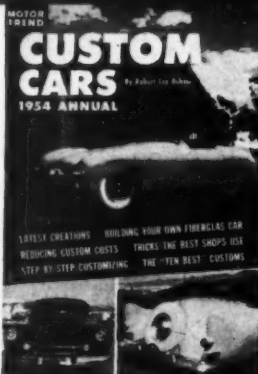
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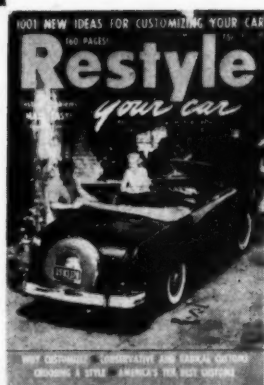
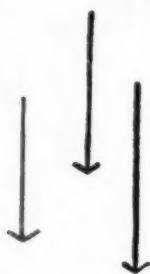
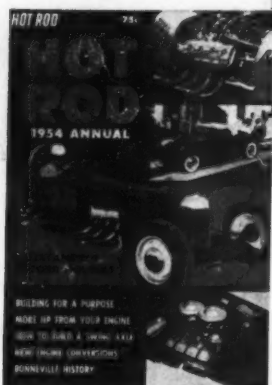
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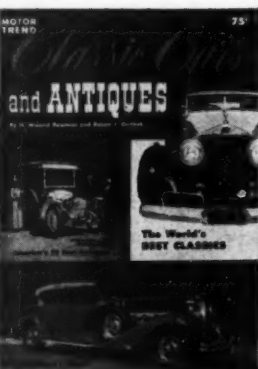


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